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TELEGRAPHIC ADDRESS—LANCET, LONDON

[ONE HUNDRED AND SIXTY PAGES.]

TELEPHONE NUMBER—5356 GERRARD

No. IV. OF VOL. II., 1908. No. 4430. Vol. CLXXV.

LONDON, SATURDAY, JULY 25, 1908.

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LECTURER ON PSYCHOLOGICAL MEDICINE AT ST. BARTHOLOMEW'S HOSPITAL, LONDON.

GENTLEMEN,—To people at various epochs in their lives there must occur the consciousness of the necessity of inquiring as to whether their endeavour up to that point has been equal to reasonable expectation in the realisation of the ideal, or whether it has been a failure, and this consciousness is a purely personal one, only imperfectly, perhaps even incorrectly, estimated by the external critic. The wise person will do well to analyse the processes by which he has succeeded or has failed, to note whether he was of necessity led to one result or the other by circumstances which he could not control, or whether by his own view of the end to be accomplished he was so able to steer his course that at last—as the French say—he "arrived." In this process of introspection he will recognise that fortuitous circumstances occurred of which he could have had no prescience, which acted as unexpected currents, favouring or obstructing his passage to the goal which was a dim abstract, a potentiality in the far horizon, possibly a mirage after all. A correct estimation of his own experience up to a certain stage will then influence him as to how he shall point his compass for his final objective; and all these introspections—which no outside observer can more than imperfectly estimate—indicate the possession of certain mental qualifications showing that there is really a psychology of success, an exploitation of existing basis capable of inflection and development, liable to incorrect or incomplete interpretation by the onlooker, and only accurately to be estimated by the actor in the little drama of his own life.

But though the outsider can have but a partial insight into the causes which have conduced to the success of another, his observations may be an important complement to the introspection of the protagonist, for he can be the witness to many phases of transit through definite mental processes which the subject himself may show externally whilst he is internally but dimly conscious of them, such forces, perhaps, as personality, energy, conditions of environment, antecedent special experience which he (the observer) may have knowledge of, but which he has hitherto kept in the recesses of his own consciousness. Our knowledge of the psychology of success is, then, a fusion of internal and external factors, like most other psychological processes, and as the internal factor cannot always be correctly analysed whilst the external one may result in an incorrect judgment, it is manifest that a correct psychology of success is not always practicable for a definite case, although there will probably be a general consensus of what are the main constants, whilst allowing the power of variables to stultify correct prognostication in all cases.

There can be no universal psychology of success because the determinants are so often to such a degree tempered by the changeable environment, education, and habit that the part played by the individual mind becomes quite subordinate as far as shaping an end is concerned; yet even here there must be certain qualities which enable the individual to see that the insignificance of his own potential compared with the position thrust upon him and the proper exercise of this knowledge are coördinates of the condition which if interfered with may spell failure. In such a case the very qualification which is the local sign above all others of successful accomplishment—viz., energy—should be conspicuous by its repression and it is this occasional intervention of unintentioned accompaniments, or accidents as they must be termed, which makes the difference between luck and success. We talk of good or bad luck as an ancient would believe in his gods; we are superstitious about it, make a fetich of it, and seek for a mascot which shall conciliate or successfully counteract the chance influences which we imagine are at work. For, after all, it is imagination which is at work when we account for results which we cannot trace out in their happenings to what is called chance at one time, at another the good or evil genius. The usual idea of luck is that something favours or acts against you which you had no right to expect or reckon on. A man who stays at home all day, who can always be relied upon to be at a certain place, gets patients; the man who happens to be in when the telephone summons him to go to a good patient is said to be "lucky." He who backed the outsider for the Derby and won is said to be "lucky"; but if it is meant that a special Providence intervened on his behalf then luck means a miracle, an alteration in the usual sequence of cause and effect. In that Hindoo love story, "A Digit of the Moon," there is the history of an atheist who was about to be married. One of his friends advised him to propitiate Genèsha. The atheist ridiculed the idea of making terms with a man with the head of an elephant and said, "What has he to do with success? He who forms his plans with prudence and executes them with wisdom may count on success. Out on your Genèsha! I will ensure my own success." Needless to say that for the purposes of the story he failed, but how this came about I must leave you to read. The lesson I wish to draw is that for those who raise a fetich this poem, whose antiquity cannot even be guessed, serves to show a possible source of their credulity.

There are some results and incidents which are more likely to occur than others in the estimation of those who are credited to be the people best qualified to express opinions and to form judgments, whereas the truth is these very people had not all the premisses before them for forming correct judgment, so that what they wrongly judged would be a success never really had any possibility of it, and so they designate their failure "bad luck," whereas it really was incomplete and imperfect knowledge of the circumstances, hence a bad judgment; there was no Chance in their failure, it was a certainty. Some men are said to be "lucky" or "unlucky," according to the trend of the results of their actions, as if they are either the chosen of the gods or the victims of the evil one; as if the man himself is the plastic matter about which potential good and evil are always in conflict, sometimes to the man's success, at others to his failure, as one or the other of the contending powers is triumphant.

Who is there who does not at times say, "As for the rest I must trust to luck," or if he fail say, "Just my luck," instead of saying, as he ought to do, "I must get to know as much as is possible about the conditions and leave nothing out which might lead to a different result from the one I want." The bookmaker is the one who knows that it is impossible to form a correct judgment on the result of a race because no one can be thoroughly possessed of all the factors of the major premiss, and so he wins in the long run, though losing at times because to a limited number the elements which are necessary for the judgment which they form having been fully estimated are vindicated by the result.

Nobody wins when he ought not to do, though he may win when he did not expect to do. To be lucky is to succeed when you did not expect to do so, when as far as yourself is concerned you did not deserve to do, and should not have done, when you have unconsciously tumbled into the path which leads to success. To be unlucky is to find yourself placed in circumstances which are against a favourable issue but which (circumstances) are a necessary result of the "content" of causes, some of which were either ignored or were not valid for your consciousness. Without omniscience there must always be intervening possibilities, which, though affecting processes which are permissible to some, are yet positively criminal to others—e.g., betting on an issue is as a rule full of uncertainties; it is, however, an allowable act for some who find recreation in the excitement of it and are able to afford it within limits, but it is a criminal thing in those who cannot afford to risk money and reputation, who prefer to imperil a success by a gamble and to trust to a "luck," which, orthodox in itself, may be disastrous to them. To gamble is to hypothecate success, to override responsibility; it is rarely legitimate (speaking morally and ethically) and is at times actually illegal; but as a fact there are few processes deliberately entered upon which are not to some extent a gamble though the chances of intervening impediments may be so small as to be rightly eliminable and a

success or a failure may be confidently predicable. That men are willing to run risks with their eyes fully open to the fact that the chances of success are against them—nay, more, that they incur these risks when there are such probabilities of actual fraud which makes success impossible—is shown by the existence of laws which are passed to prevent men investing in certain forms of gambling, the object being to protect the weak against the strong who are to such a degree the positive arbiters of what must be the result that they are actually thieves, not worthy of the name of sportsmen because their victim has no chance of any other result than loss or capture. Gamblers, says de Morgan in his "Probabilities," think that they are trying their "luck," but if they could be convinced that it is not their luck which they are trying but only a fraction of it, their opponent having the rest of it in his pocket, they would show themselves averse to risks in which it is more than an even chance against them. After all, "chance" is but the absence of any known reason why an event should turn out one way rather than another, spoken as if it were a Genèsha, a real agency. Though Aristotle spoke of "absolute chance," or chance without any determining cause whatever, by lawless, sporadic originality, he was clearly under the domination of the Ganésha idea. Far more philosophic is Clarke who in one of his sermons says: "It is strictly true in nature and reason that there is no such thing as chance or accident."

The man who elaborates a "system" and who stands or falls by it is not a gambler: he is as legitimately entitled to his results as is he who conducts any other form of business, and he shows that he is not a gambler because if his system fails he either corrects it or gives it up altogether and does not yield to any temptation to trust merely to chance—in fact, the temptation for him does not exist. The desire of excitement (emotional) and the desire of wealth are the chief psychological factors in gambling; take away the former and you find the fool—fool because he ought to know that in striving to get hold of a large result for which he is giving no equivalent he is taking a course in the dark the outcome of which he cannot possibly predict, since against him are arrayed not only the inherent difficulties of the position but also the extraneous forces brought to bear by those who have everything to lose and little to win. If (as is usually the case in women) the love of excitement is the chief incentive to gambling, and the fact of success or failure is a secondary consideration, then the case is indeed a bad one, for it is a craving which is easily ministered to and catered for, and it leads to selfishness, neglect of duty, and moral degradation.

Success may be defined as the accomplishment, the realisation, of what was willed or wanted, the ripe fruition of the well-tended tree. It is the tomb of energy, the collapse of strife, and the satisfied goal of ambition. Often accompanied by mixed feelings, it has a variable margin, at one time bearing the impress of the mediocre and the partial, at another soaring to the pleasurable heights of the tremendous and the undreamt. The transformation of the ideal into the real may mean a rude awakening, the revelation of a crystallised and concentrated atom whose very shape sets up surprise when seen as the realisation of long and strenuous endeavour, a thing to be studied and incorporated so that it may grow and develop and not remain as the mere index of achievement strangled in its birth, with its potentialities sterilised—or perhaps to be rejected as a disappointing monster the sooner consigned to oblivion the better.

Too often success is made the end whereas it may be merely the beginning. The expenditure of force in the production has been too great or too long delayed and the result, unable to nourish itself, dies from inanition, loses its inertia, and makes no progress. At times an accident, though as a rule the fruition of patience and well-directed energy, it is often capricious and may elude the grasp of him who thinks that he has secured it, and it is just this expectant uncertainty which stimulates the energy of those who find that they have attained a phantom and that it is not the sought-for object which has projected the shadow. When a man fails in his endeavour he is glad to take shelter under the sophism that he has deserved success though not able to command it—as if energy alone were the "ultimum arbitrium" of success; but if the conditions are complete success is bound to follow and what seemed an accident was in fact a necessity, whilst what "ought to have been a success" was in truth a predestined failure because the logical antecedents of the failure were the predominant partners in the content. So many excuses are made for failures. Either the moment was not propitious—the subject was born out of time—or interest in the matter had waned, or the markets were changed, or hundreds of reasons other than the right one—viz., that the thing could be done without, that it had missed fire at the critical moment, or that it never had any rising force in it at all.

The public may know what it wants or there may be an "is wanted" quite independent of what this same public thinks. In either case the timely supply of the article spells its success. But it is not a mere matter of passive supply and demand. He who waits for a demand may find the supply remaining idle on his hands. The thing to do is to create the demand and then, if possible, to corner the supply. Now in business this is much easier to do than in the professions, partly because the business man is less hampered by etiquette, whilst the professional man moves in a restricted sphere and his relation to the public is more one of ideals. There is (more especially in medicine) nothing solid to put in the pocket to restore the equilibrium which has been upset by money spent, and unless the ideas can be converted into *things* there is not much chance of success. Thus it is that whilst the successful business man is a common object, so common, indeed, as to attract little attention, the successful professional man is a mark of wonder and discussion, and very often what may be strictly a professional success is attributed to his having been "put up to" several "good things" by a friend in the City.

Success may really be a cause of failure, because having been once achieved it may stop a man from proceeding to a higher development—he is content with what he has. Such success as he has attained seals up adventure and limits discovery; it is like the three golden apples of the Hesperides which Melanion threw down in his race with Atalanta—she won the apples but her temporary success in getting the gold lost the race and with it herself. We probably never see the best man in anything, whether mental or muscular. There is always someone better, if not altogether certainly at times, and the public rapidly turns to the new sun, especially if the success of the old light has become dimmed by time or obscured by a trip over an unforeseen obstacle. As Emerson says in his "Fortune of the Republic," "As soon as the success stops and the admirable man blunders they quit him." How true this is. How soon is a success forgotten and the former idol of the public relegated to the pantheon of worthless and used-up gods.

Success often comes from the most unlikely materials, because we cannot always predicate just what is wanting to make a thing a success; it may be a sudden presentation or idea, or an opportunity, or some unexpected combination of circumstances. The failure of one individual or group of persons may mean the success of another by the withdrawal of opposing but powerful and dangerous impediments, and even a purposed failure may be the cloaked means of success, as when a man goes bankrupt and then rises from his ashes freed from encumbrances and ready to soar to the empyrean.

One often hears of various "blue ribbons" which are the local signs of success. I suppose that the blue ribbon of medicine is to be President of the Royal College of Physicians; of surgery, to be the President of the Royal College of Surgeons; of science, to be President of the Royal Society; in politics, to be Prime Minister; in art, to be the President of the Royal Academy; but what is the criterion of success in literature with its subdivisions of poetry, fiction, and history? Here, though there is much competition, there is no office which can confer the cachet of pre-eminence; this is left to the arbitrament of public opinion which adjudicates in very different ways according to the particular section which is appealed to, even the professional critics being rarely unanimous in their decisions. Coming to the muscular world, success here is more easily determined, for though, of course, there are certain mental attributes which are necessary adjuncts there are yet standard records and these show that there are people who do what no others have done before, whilst the same can scarcely be said of mental successes, though as to what is called a "moral success," the fact that it is but a success in name, without solid accompaniments, indicates that it is

generally a failure. The usual estimates of success are expressed in the terms of £ *s. d.*, or of social position, or in self-satisfaction, and this objectivity or subjectivity may be taken as a fair exponent of what happens, though true appreciation of the result is not always reached; for instance, a man may succeed to his own satisfaction (subjective) in doing what he has aimed at, but his is an unappreciated potential, he makes no money by it, and the public may pass it by, but to the man himself his mind a kingdom is, and so another may become objectively conspicuous by his wealth and the homage accorded to him, but subsequently he may feel that he has failed, and if he has missed contentment with his original objective there is no doubt that he has really failed. This want of contentment may even turn what was a success into a failure. Not satisfied with what really is a good thing and in all ways sufficient a man tries to augment his results but loses what he has acquired because he has not rightly appreciated the time to stop. Actors and singers often commit the fatal error of continuing the emotional elation of achieved success, not recognising that their potential is exhausted and that they are really by working an exhausted mine proceeding on the direct route which leads to failure. So one sees in the reluctance of men to drop their work after compulsory retirement at a comparatively early age the same spirit of desire for the following-up of a so far successful career, whereas results show that it is generally best not to attempt too much, especially if it means taking on new work which always involves strain.

Men talk of the *ennui* of having nothing to do, but it is scarcely complimentary to the man himself to think that he has no resources or occupation other than the continued monotonous reflex of what has been his life's work. Every intelligent man ought to be able to fill up his leisure by occupation derived from the side-chains of his former duties. It makes one almost suspect that men really shirk the idea of dropping the so-called "work" which has become an easy reflex in the contemplation of having to look around for fresh fields in which new energy has to be employed. One finds on circumspection that most very successful men have been those who knew how to delegate to others much of what had to be done—of being able, as it is said, "to make others work for them." I admire such men: such a power denotes the absence of jealousy and the possession of the intelligence to see that whilst it is really easier to fill up one's time by work which has become a second nature, it is positively bad in principle because the time is wasted which might more profitably be employed for new developments. I know some men who are voted by their fellows to be hard taskmasters because they place on the shoulders of their subordinates much of the work which is their own function, but I admire those men who can load others with their own burdens, because I see how they are laying down the foundations of future successes by employing these docile donkey-engines. One hears it said, "How hard so-and-so works, how he slaves for hours!" I know that very often this much-belauded person is nothing but a lotus-eating fool, wasting the time by basking in an indolent atmosphere, thinking that he is doing his duty whilst all the time he is a doddering common-place person, cramped and borne down by the weight which ought to be put on the shoulders of those who are standing by and laughing at him because of their immunity.

A propos of these remarks, we note that some of the most important parts of the mental content that makes for success are cruelty, sacrifice of others, and deceit. Well, what of that! The drama of life involves all these. If contentment is the equivalent of success—i.e., being self-satisfied with the attainment of one object, whatever that object may be—it means that obstacles must be ruthlessly overthrown, opposing feelings and sensibilities trampled on if they stand in the way, hence successful men are strong men. The general who hesitates to act, because by doing so he will certainly sacrifice a number of lives, may earn a reputation for humanity but he will not be a successful leader. Did Napoleon or von Moltke consider lives of men at Austerlitz or Gravelotte? Do Governments which have given pledges to obtain success consider the feelings and the very means of existence of the minority? We all profess to admire virtue, charity, courtesy towards others; but as often as not virtue means incapacity—the loud preacher who extols temperance and chastity probably has no temptation the other way—the man who invokes has very often his own axe to grind, whilst courtesy is an alias for the external gilding of a very bitter pill. What is wanted to insure success is above all things courage. How many lives are practically thrown away because men have lacked courage, preferring to run the charted course of mediocrity to the risk and trouble, the anxiety and the endless vista of work involved in striking out a path for themselves, letting "I dare not" wait upon "I would." The man who courts success cannot afford to tread the path with those who are safe in their mediocrity, to do so is to be one of them; he must use them as a stepping-stone, which implies that he must put them off the scent of his aspirations, must keep them blindly following their noses, and even encourage them to persevere towards what he sees is their goal, lest by chance he should arouse their jealousy and find them pulling him back into their ranks. Sometimes the success is beyond the dreams of avarice, it exceeds in vitality and fruition all expectations. There was in reality more potentiality in it than was known. At another time the mine abruptly fails, all in obedience to laws which have been imperfectly recognised.

If we turn to our own profession and try to appraise the qualities which have been associated with, if they have not actually led to, what is generally granted to have been a successful career—*cela donne furieusement à penser!* It occasionally happens that after a man's demise, when the pigeon-holes of the journals have declared the contents of his *dossier*, we find an array of qualities and virtues little thought of, with a charitable silence regarding failures and faults. Such biographies are of little value in estimating cause and effect—how can they be? They represent only one side of the figure, the important one, the subjective side, being wanting. Perhaps for this reason it is wiser for a man to leave the writing of his biography to a friend or to an impartial critic, who has, however, merely objective data to form his judgments upon. So one gets to distrust "biographies" in so far as the obtaining a true insight into success or failure goes. The picture is so stippled and the blemishes are so artfully concealed that the image is no more a really representative one than is the miniature or the photograph of a society artist. Probably de Quincey was the best autobiographer that ever lived but then he did not spare himself. Most biographies are either the product of the enthusiasm felt by personal relatives or friends or else they are the speculations of enterprising publishers who shrewdly calculate that the public will like to be interested or amused by the circumstances which have surrounded the life of a prominent person. But no one with any experience of life can be taken in by these depicts.

I have often observed how very uninteresting in private life are many persons of great prominence in literature and art; yes, and in science, too. The reason is obvious. Nowadays there is such great competition for new ideas or vagaries that writers cannot afford to give clues to possible successes to others, and so men who have achieved or are well on the road to successes will sit silently absorbing all that is being said or done around them, taking everything but giving nothing. I remember a great society entertainer whose sallies provoked peals of laughter from his audience but privately he was a most tiresome person, sitting and quietly assimilating any atmosphere in which he happened to be placed or had purposely thrown himself into, but conspicuous by a marked absence of reciprocity, chewing the cud of absorbed coruscations of fancy from others, only to distribute them when the proper time arrived. Does the teacher or lecturer live who gives all his best to his pupils? The latter know that they are conversant with all he has taught them, but he has generally kept something up his sleeve.

Whatever knowledge a man may possess he must be able to make it available if it is to be a recognised success—of course, to be actually a success does not postulate publicity—but to be a convertible success the environment, i.e., the public, must know where to find what they want, and this can only be done by, speaking frankly, advertising. There are scores of men in our profession who are to all intents and purposes equally qualified to succeed, but the majority of whom lack something to make the public seek them out and employ them, and that something is usually that they are not known. How can the recognition of merit be expected unless it is known to exist and the public be made to believe in it? So, practically, the arbiter of success is the public; therefore

the only way to get at the public is to advertise. But this has to be done carefully, and the legitimate paths for it are few and very jealously guarded. Perhaps there is more laxity in considering the bounds of legitimate advertising than was permitted some time ago (not very long) when greater stringency prevailed. And much is to be said for the propriety of taking the public into professional confidence. The success of quackery depends on the shameless and lying advocacy of certain compounds which are prominently displayed before a public which is only too apt to believe what is boldly asserted and is not contradicted. The public which supports the hospitals and other medical charities has probably a right to know the truth about what is openly published, and though it may be said that it can always get the truth by applying to authorised medical authority, it should yet be remembered that the public cannot always do this, and therefore we must not pass hasty judgment on those who in the interests of truth and (admittedly) of personal prominence undertake to instruct the public in the lay press and to correct their errors. It is easy to mention great scientific epochs such as the antiseptic treatment of disease, the localisation of the functions of the brain, the determination of the opsonic index, which won immediate distinction, which is a form of success for their exploiters, but even here the publication of the various theories in the lay press by editors who extract from purely medical sources matters which they find do interest the public must have been the source of the addition of a material to what was a nominal success. On the other hand, material success has come to many whose purely scientific claims have been *nil*, but who have influenced their surroundings and brought themselves into connexion with a large *clientèle* by such means as a strong personality, by prominence on public platforms, by various devices for engaging public attention, even by the possession of a striking name, &c.; but in whatever way success is achieved there are four mental necessities, viz.—a clear view of the end, a judicious indifference to the sentiments aroused by the sweeping away of obstacles, an indomitable energy, and a power to resist the temptation to rest on the soporific plain of mediocrity.

I have often wondered what would happen if men could live their lives again, retaining their experiences of mistakes and successes with a fair knowledge of the causes that led to them. It might turn out that the lines of former successes would not be available because others would see what was being done and would checkmate it. Certainly some failures would be turned into successes because the schemer would know how to avoid former pitfalls. The validity of former experience would certainly tend to longevity but might delay advancement and progress because the knowledge of circumstances would set up hesitation and so opportunities would be lost because angels fear to tread where fools rush in. On the whole it would be a tame world—things would be so certain that the interest attached to what we now call "chance" would not exist; the springs of hope would be cut off at their source because definite knowledge would lead to emotional extinction; energy would be not so necessary; for if quiet routine and its positive result would ensure certainty, why not calmly await the issue? It seems only right that everyone should have his opportunity of proving his own intrinsic merit and not be handicapped by the competition of people who had previous experience of the course—another instance of the faith which most of us hold that we must do our best to evolve to its uttermost such potential as we may possess, which potential is, however, limited and beyond our power to augment.

UNIVERSITY OF EDINBURGH.—As in former years, vacation courses in modern languages will be held in August in the University of Edinburgh. They will consist of lectures and practical lessons in English (chiefly for foreigners), in French, and in German, at least three hours daily being devoted to each language. The teaching staff will include nine University professors and lecturers specially brought from France for these courses. The total number of teachers and students has hitherto averaged 350 to 400 in each year, nearly half being foreigners. The sole aim of the promoters is to advance the cause of education and of a good *entente* with all nations. The fees are so moderate as barely to cover actual outlays.

The Croonian Lectures

ON

INBORN ERRORS OF METABOLISM.

Delivered before the Royal College of Physicians of London on June 18th, 23rd, 25th, and 30th, 1908,

BY ARCHIBALD E. GARROD, M.A., M.D. OXON., F.R.C.P. LOND.,

ASSISTANT PHYSICIAN TO, AND LECTURER ON CHEMICAL PATHOLOGY AT, ST. BARTHOLOMEW'S HOSPITAL; SENIOR PHYSICIAN, HOSPITAL FOR SICK CHILDREN, GREAT ORMOND STREET.

LECTURE IV.*

Delivered on June 30th.

CYSTINURIA (*continued*).

MR. PRESIDENT AND FELLOWS,—The foundation of the wider conception of cystinuria as an error of protein metabolism of which the excretion of cystin in the urine, although the most constant, is only one of the manifestations, was laid by Udranszky and Baumann[1] in 1888. These investigators found the diamines, cadaverin and putrescin, both in the urine and fæces of a cystinuric patient under their observation, and the significance of this find was greatly enhanced when shortly afterwards Stadthagen and Brieger[2] detected cadaverin in the urine of two other cystinurics. In Baumann's case the diamines were readily isolated from the urine of 24 hours by benzoylation in the presence of sodium hydrate,[3] and the daily yield varied between 0·2 and 0·4 gramme of benzoyl-diamines. The major part of the urinary diamine was cadaverin, whereas in the fæces putrescin was the more abundantly present. In 1893, when Garcia[4] had the same patient under investigation, putrescin was alone found in the urine, but in 1897, nine years after their original discovery, both diamines were once more excreted as at first.

In no condition other than cystinuria have these diamines been found in urine in quantities which could be detected by the ordinary methods in the excretion of 24 hours. By evaporating down as much as 100 litres of normal urine Dombrowski[5] was able to demonstrate the presence of traces of cadaverin therein, and after evaporation of large volumes of the urine of patients with pernicious anæmia William Hunter[6] obtained small yields of benzoyl-diamines. Roos[7] also found cadaverin in the fæces of a patient with dysentery and putrescin in those of a sufferer from cholera nostras, but the urine was not examined for diamines. During the past ten years I have myself benzoylated the urine of 24 hours of large number of patients suffering from various maladies, but such searches for diamines have invariably proved fruitless save in cases of cystinuria.

Even in cystinuric cases the search for diamines in the urine and fæces is far from being uniformly successful. In a number of cases they have been found by Bödtker,[8] C. E. Simon, Riegler, Marriott and Wolf, Thiele, Cammidge, Schölberg, and myself, but in others Cohn,[9] Baumann,[10] Alsberg and Folin, Loewy and Neuberg, Hurtley, Hele, and I have been unable to detect their presence, although in

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* Lectures I., II., and III. were published in THE LANCET of July 4th (p. 1), 11th (p. 73), and 18th (p. 142) respectively.

[1] Zeitschrift für physiologische Chemie, 1889, vol. xiii., p. 562.

[2] Berliner klinische Wochenschrift, 1889, vol. xxvi., p. 344.

[3] 1500 cubic centimetres of urine are shaken with 200 cubic centimetres of 10 per cent. sodium hydrate solution and from 20 to 25 cubic centimetres of benzoyl-chloride, till the smell of the last disappears. The precipitate is filtered off, washed, and treated with hot alcohol. The filtered alcoholic extract is thrown into excess of water. If diamines be present their benzoyl compounds will in a short time separate in minute crystals. The melting-point of benzoyl-cadaverin is 129° C., that of benzoyl-putrescin 176° C. Two other methods have been employed for the detection of diamines in urine—viz., the picric acid method of Stadthagen and Brieger (loc. cit., sub. 2) and the phenylisocyanate method of Loewy and Neuberg (Zeitschrift für physiologische Chemie, 1904, vol. xliii., p. 355).

[4] Zeitschrift für physiologische Chemie, 1893, vol. xvii., p. 577.

[5] Archives Polonaises des Sciences biologiques et médicales, 1903, vol. ii.

[6] Transactions of the Medical Society of London, 1890, vol. xiii., p. 386.

[7] Zeitschrift für physiologische Chemie, 1892, vol. xvi., p. 192.

[8] Norsk Magazin for Laegevidenskaben, 1892, vol. liii., p. 1220; Zeitschrift für physiologische Chemie, 1905, vol. xlv., p. 393.

[9] Berliner klinische Wochenschrift, 1899, vol. xxxvi., p. 503.

[10] Pfeiffer: Centralblatt für Krankheiten der Harn- und Sexual-Organe, 1897, vol. viii., p. 173.

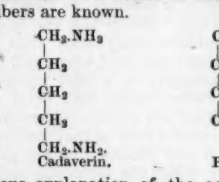
some instances the examinations were persisted with over considerable periods.

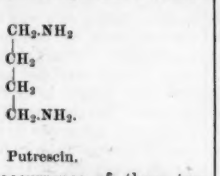
My own experience relates to nine cases of cystinuria. In four of these diamines were found in the urine at one time or another and in one the fæces also; in several cases no opportunity of examining the fæces presented itself. My impression is that the likelihood that diamines will be detected in any given specimen of cystin urine is comparatively small, but that if in any case the examinations be continued over sufficiently long periods they are likely to be found eventually.

Of the two diamines cadaverin has been much the more frequently found in the urine, whereas there is evidence that putrescin is more often present in the fæces. In no other case have cadaverin or putrescin, or either of them, been shown to be present so continuously, in quantities easy of detection both in urine and fæces, as in the original one of Udranszky and Baumann, but even in that case the quantities and relative proportions of the diamines present varied considerably and at one time they were almost absent from the urine for several days. In the case investigated by Cammidge and myself [11] cadaverin was found in the urine of two days only out of 41, and putrescin in the fæces at one of six examinations. In another case, in which specimens of urine were sent up to us in gallon jars, one such specimen was rich in cadaverin which was readily extracted by benzoylation from each separate fraction treated, but in no other sample from this patient was any diamine found. From the urine of yet a third patient Schölberg and I [12] got putrescin and cadaverin on several occasions, but five years later, when the same patient was under continuous observation for several weeks, Hurtley and I [13] were uniformly unsuccessful in our search for diamines in his urine and fæces.

These results, taken in conjunction with those of other observers, indicate that in some cases of cystinuria the presence of diamines, in quantities which can be detected in the urine of 24 hours, is a very intermittent phenomenon which may only be manifested at long intervals. It is evident that it cannot safely be asserted that a given cystinuric never excretes them, even when they cannot be found in the urine for days or even weeks together. It is possible that the apparent intermittence is merely due to varying amounts, for a number of experiments in which cadaverin was added to normal urine in different proportions, have convinced me that failure to detect diamines by the methods in use cannot be held to exclude their presence in quantities, small indeed, but much greater than the normal traces found by Dombrowski.

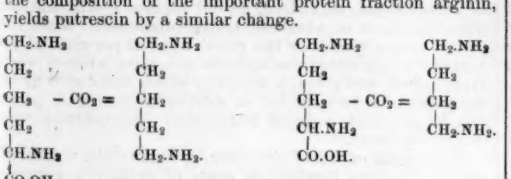
The substance known as cadaverin is penta-methylene-diamine, and putrescin is tetra-methylene-diamine. They are two members of a series of such compounds of which other members are known.





An obvious explanation of the occurrence of these two particular members of the diamine series, both in the excreta of cystinurics and when proteins undergo decomposition, under the influence of bacteria, is afforded by the fact that they are intimately related to two of the protein fractions, the diamino-acids lysin and ornithin.

Lysin is converted into cadaverin by the elimination of carbon dioxide, and in like manner ornithin, which enters into the composition of the important protein fraction arginin, yields putrescin by a similar change.



[11] Journal of Pathology and Bacteriology, 1900, vol. vi., p. 327.
[12] THE LANCET, August 24th, 1901, p. 526.
[13] Journal of Physiology, 1906, vol. xxxiv., p. 217.

When Udranszky and Baumann wrote our knowledge of the structure of protein molecules was far more imperfect than it now is, and, as the known source of the diamines in question was the bacterial decomposition of proteins, they naturally suggested that their presence in the urine and fæces of cystinurics might result from a similar decomposition carried out in the alimentary canal, and that cystinuria itself was probably indirectly due to an intestinal infection. The absence of cystin from the fæces weighed strongly against its being itself a product of intestinal decomposition, but it was thought that the diamines thence absorbed might in some way preserve the cystin from its usual fate. However, the administration of diamines to dogs was found not to produce cystinuria in them, intestinal disinfection was found to have no influence upon the excretion of cystin or diamines, and cultures from the fæces of cystinurics have failed to reveal the presence of abnormal bacteria having the power of forming diamines from proteins. In the absence of any positive evidence in its favour the infective theory of cystinuria, which at one time met with wide acceptance, has now been abandoned and opinion has veered round to the view that the diamines which cystinurics excrete are themselves products of metabolism derived from the lysin and arginin of proteins broken down in the organism, a view which was independently advanced by Moreigne [14] in France and by C. E. Simon [15] in America.

This hypothesis receives very strong support from the observations of Loewy and Neuberg [16] upon their exceptional patient already frequently referred to. Although no diamines could at ordinary times be detected in his urine, when lysin was administered to him by the mouth he excreted cadaverin in large quantities, and when arginin was so administered he excreted putrescin. In two other cases of cystinuria Hurtley and Hele and I [17] could find no putrescin in the urine after the administration of five-gramme doses of arginin carbonate, although one of the patients had spontaneously excreted putrescin five years previously, sometimes alone and sometimes in association with cadaverin. As we shall see, these results are fully in keeping with those obtained with other protein fractions in Loewy and Neuberg's case and other cases of cystinuria respectively.

It would be very interesting to know whether in Loewy and Neuberg's case the taking of diamino-acids by the mouth was followed by the appearance of diamines in the fæces as well as in the urine, for, although the diamines have comparatively seldom been found in the fæces of cystinurics their occurrence therein is beyond question, and if in cystinuria they are products of metabolism we must assume that they are in part excreted by way of the alimentary canal.

It does not necessarily follow that the diamines present in the fæces in cases of grave intestinal infection, such as Roos examined, have the same origin as those excreted in cystinuria, for it is quite possible that they are formed in the intestine by bacterial action, and even that the normal traces in urine have such an origin; but in Udranszky and Baumann's case the abundant diamine yield from the fæces was undoubtedly connected with the urinary output and with the underlying cystinuria, for diamines are not to be detected in normal fæces, and their patient had no intestinal disorder. It is worthy of note that in the case at which Cammidge and I worked the urine of the only day on which putrescin was found in the fæces yielded no diamine.

It is conceivable that the change from diamino-acids to diamines might occur after excretion, both in urine and fæces, but some observations which we have made on specimens of urine kept for considerable times lend no support to such a view. Specimens which yielded no diamine when fresh equally failed to yield any when kept or even when decomposing. T. S. Hele allows me to quote the interesting fact from his as yet unpublished results that when he recently examined large specimens of urine from a cystinuric already referred to, who at one time excreted cadaverin, he failed to obtain, by the method employed by Wohlgemuth for their detection in cases of phosphorus poisoning, any evidence of the presence therein of lysin or arginin. There is therefore no evidence yet forthcoming to

[14] Archives de Médecine Expérimentale et d'Anatomie Pathologique, 1899, vol. xi., p. 254.
[15] American Journal of the Medical Sciences, 1900, vol. cxix., p. 39.
[16] Zeitschrift für physiologische Chemie, 1904, vol. xliii., p. 365.
[17] Loc. cit., sub. 13, p. 220.

support the tempting hypothesis that diamino-acids are excreted as such by cystinurics.

Garcia [18] thought that the excretion of diamines varied with the amount of protein in his patient's diet, and Thiele [19] has recently expressed the same opinion. The latter observer obtained a far larger yield of benzoyl-cadaverin from the urine of a day of excessive meat diet than in that of a day of abstinence or of a diet rich in carbohydrates. However, his observations are too few to allow any definite conclusion to be drawn from them, seeing how widely the diamine excretion varies apart from changes of diet. In the case which Cammidge and I investigated the diet of the days in which diamines were excreted did not differ from that of other days.

To sum up, the excretion of cadaverin and putrescin in some cases of cystinuria, both in the urine and fæces, in quantities such as have not been found in any other condition, is an established fact. The easier explanation which ascribes their presence to an intestinal infection offers no adequate explanation of their association with the excretion of cystin and receives no support save from its inherent plausibility. The alternative theory which regards the diaminuria as an outcome of the same error of metabolism as cystinuria has much more in its favour, although it presents certain obvious difficulties, especially as other protein fractions than cystin are undoubtedly present in the urine of some of the subjects of this anomaly.

Leucin and tyrosin have been found in several cystin urines. Thus in 1891 Piccini and Conti [20] detected crystals of tyrosin, together with those of cystin and of uric acid, in the urinary sediment in their case. Percival [21] speaks confidently of the presence of both leucin and tyrosin in small amounts in the urine of his cystinuric patient. Moreigne [22] also described the presence of tyrosin, but the method which he recommends for its detection suggests that he mistook for crystals of that substance the prismatic crystals of cystin hydrochlorate. The presence of these amino-acids in the urine of one cystinuric at least has been established beyond all possibility of doubt by Abderhalden and Schittenhelm,[23] who extracted from the urine of their patient both tyrosin and leucin in considerable quantities, and fully proved their nature by the ultimate analysis of the tyrosin which separated after evaporation of the urine, and of the naphthylene-sulphon derivate of leucin obtained therefrom. Emil Fischer and Zuzuki [24] also detected tyrosin in a cystin calculus. Leucin and tyrosin would appear to be far rarer constituents of such urines than are the diamines. In no case which I have had under observation have they been detected, although sought for. Millon's reagent lends valuable aid in the detection of tyrosin, for although all urines yield some pink colour with this reagent, even in the cold, the presence of tyrosin in any considerable quantity conspicuously intensifies the colour on heating. It may indeed safely be concluded that any urine which does not yield more than the normal reaction with Millon's reagent does not contain tyrosin in appreciable amount. The urine of Loewy and Neuberg's patient contained no tyrosin, but when tyrosin was given to him by the mouth he excreted it unchanged and almost quantitatively. After a dose of 6·2 grammes of tyrosin no less than 4·82 grammes were recovered from the urine, and its nature was confirmed by ultimate analysis. On the other hand, C. E. Simon,[25] Alsberg and Folin,[26] Thiele,[27] Hele, Hurtley, and I [28] have failed to find any tyrosin in the urine of other cystinurics after the administration of similar doses. Hurtley and I obtained from the urine of our patient, on the days on which tyrosin was given, a benzoyl compound which melted at 253° C. The yield was small and its nature has not been determined. Thiele obtained no such product by benzoylation of the urine of the tyrosin day in his case. Loewy and Neuberg also found that aspartic acid, another protein fraction, was excreted by their patient when administered by the mouth, but in Alsberg and Folin's case aspartic acid so given did not reappear in the urine. Hurtley and I obtained on many occasions on benzoylating the urine of our patient small quantities of a benzoyl compound which, after repeated recrystallisation from alcohol, melted at 205° C. The collected yields only amounted to 0·22 gramme of substance, and a single analysis, which was alone possible, gave figures which suggested that it was probably the benzoyl compound of a derivative of tryptophane. However, we are not prepared to make any definite suggestion as to the nature of this substance, which we have not obtained from any other cystin urine.

The question arises whether the implication of the several protein fractions follows any definite sequence, according to the extent of the error, or whether in different cases now one and now another fraction is implicated. To this question no certain reply can yet be given. It may be that the excretion of cystin in all cases hitherto examined is due to the fact that it is by the presence of cystin in the urine that the anomaly has always been recognised hitherto; but the cystin fraction appears alone to escape destruction in so many of the cases that it is highly probable that it is the first to be involved in the error.

Not a few cystinurics have excreted cystin and diamines but no leucin or tyrosin, but Percival, who found leucin and tyrosin in the urine of his patient, failed to detect any diamine, and Abderhalden and Schittenhelm make no mention of the presence of diamines in their case in which leucin and tyrosin were undoubtedly excreted. The evidence available suggests that the incidence of the error upon the several protein fractions is capricious rather than that the amino- and diamino-acids are involved in any definite order.

The nitrogenous metabolism of cystinurics deviates from the normal in certain ways not fully explained. When diamines and amino-acids are present an excess of undetermined nitrogen in the urine—i.e., of nitrogen not contained in urea, uric acid, kreatinin, and ammonia—is to be expected, but Alsberg and Folin, whose observations upon this aspect of the subject are the most complete yet carried out, found an abnormally high nitrogenous residue, although the urine of their patient contained no diamine nor amino-acid other than cystin. This excess could not be ascribed to the small quantity of cystin excreted. Marriott and Wolf also found an excess of undetermined nitrogen, but their patient excreted diamine. Alsberg and Folin suggest that the excess of undetermined nitrogen in the urine in their case, which was conspicuously increased when cystin was given by the mouth, may have been due to an incomplete destruction of cystin, the sulphur of which was excreted as sulphate, whereas the nitrogen was apparently not eliminated in urea.

It will be clear, from all which has gone before, that we are still far from being in a position to formulate a satisfactory theory of cystinuria. Before this can be done it will be necessary to accumulate many more data by patient investigation of individual cases, and, above all, quantitative data. Obviously the anomaly is a very complex one, of different range in different cases and even of distinct natures. No theory which will explain the ordinary cases of cystinuria can apply to such a case as that studied by Loewy and Neuberg, in which any protein fraction given by the mouth appeared in the urine, the monamino-acids as such and the diamino-acids as diamines, whereas these same fractions, when given in combination as polypeptides or in the more complex form of proteins, were dealt with in the ordinary way. This raises important side issues relating to the degree of disintegration which proteins normally undergo in the alimentary canal, and suggests that if they were broken down into their component amino- and diamino-acids before absorption this patient should have excreted the fractions unchanged, as, indeed, he did excrete cystin and the mixed products of advanced tryptic digestion. When the patient took glycocoll by the mouth some 20 per cent. of the quantity administered was apparently burned, whereas when glycyl-glycin was given, a dipeptide which is not split up by the pancreatic ferment but is split by the intestinal juice, only 10 per cent. escaped destruction. Polypeptides were completely burnt.[29]

The varying extent of the error, as regards the number of protein fractions involved in cases of cystinuria, suggests that it is manifested at an early stage of the catabolic series

[18] Loc. cit., sub. 4.
[19] Journal of Physiology, 1907, vol. xxxvi., p. 68.
[20] Lo Sperimentale, 1891, vol. xlv., p 353.
[21] Archivio Italiano di Clinica Medica, 1902, vol. xli., p. 50.
[22] Loc. cit., sub. 14.
[23] Zeitschrift für physiologische Chemie, 1905, vol. xlv., p. 468.
[24] Ibid., 1905, vol. xlv., p. 405.
[25] Zeitschrift für physiologische Chemie, 1905, vol. xlv., p. 357.
[26] American Journal of Physiology, 1905, vol. xiv., p. 54.
[27] Loc. cit., sub. 19.
[28] Loc. it., sub. 13.
[29] Biochemische Zeitschrift, 1907, vol. ii., p. 438.

and concerns a mechanism which deals with a number of amino- and diamino-acids in common. In this respect cystinuria stands in conspicuous contrast to alkaptonuria, which involves a late stage in the catabolism of two closely allied protein fractions, a stage so late, indeed, that the tyrosin and phenyl-alanin derived from the breaking down of food and tissues are alike implicated. The fact that the abnormal substances excreted retain their amino-groups intact points in the same direction, for there is strong evidence that desamination occurs at an early stage of the breaking down of proteins. It is a process to which all the protein fractions are normally subjected and, as Lang[30] has shown, desaminating enzymes are widely distributed in the tissues. Moreover, it would appear that the several amino-acids are desaminated with various degrees of ease and that different members of the group are specially attacked in different organs and tissues. Lang found that phenyl-alanin was the most difficult of desamination of the protein fractions and under some conditions cystin and tyrosin were refractory. The maximum yield of ammonia, by which the change was estimated, was obtained when glycocoll or leucin was exposed to the action of the liver or the pancreas.

This complex process of desamination carried out in a variety of tissues, by the action of enzymes which appear to differ somewhat in their modes of action, may possibly afford a clue to the differences observed in individual cases of cystinuria. Thus the observation of Lang that the power of removing the amino-group is specially conspicuous in the intestinal mucous membrane on the one hand, and in the liver on the other, gives a hint of a possible explanation of such different types of cystinuria as are exemplified in the ordinary cases and in Loewy and Neuberg's respectively, an explanation based upon absence or inhibition of the enzyme which effects the change in the one situation or in the other. It would seem, also, that when for any reason the amino-acids escape this early change no alternative mechanism is available for dealing with them and they are excreted unchanged, or in the case of lysin and arginin as diamines. Thus cystinuria, like alkaptonuria, may be classed as an arrest rather than as a perversion of metabolism.

PENTOSURIA.

Our knowledge of the sugars of the pentose group is only of recent date, and dates back only a few years further than the discovery of pentosuria, the last of the inborn errors of metabolism to be considered in these lectures. It was in the year 1887 that Kiliani[31] showed that arabinose, the sugar of gum arabic, which had previously been classed as a hexose, was a member of a different class of sugars from any which had up to then been thoroughly investigated and that its molecule contained only five carbon atoms, its formula being $C_5H_{10}O_5$. Not long afterwards Wheeler and Tollens[32] found that the wood-sugar, xylose, was a second member of the group, and since then other pentoses have been recognised or obtained, including a series of methyl-pentoses, of which rhamnose is the best known. However, the original pair, arabinose and xylose, remain the important members of the class from the point of view of physiology.

Like other sugars the pentoses exist in dextro- and lævo-rotatory forms and also in optically inactive, racemic, combinations. The structures of the isomeric arabinoses and xyloses are represented by the following formulæ:—

d. arabinose.	l. arabinose.	d. xylose.	l. xylose.
COH	COH	COH	COH
HOCH	HCOH	HOCH	HCOH
HCOH	HOCH	HCOH	HOCH
HCOH	HOCH	HOCH	HCOH
$CH_2.OH$.	$CH_2.OH$.	$CH_2.OH$.	$CH_2.OH$.

The names l. and d. arabinose and xylose express their affinities to the l. and d. series of hexose sugars respectively, and not their own optical properties. As a matter of fact, both l. arabinose and l. xylose, the forms usually met with in nature, are dextro-rotatory. The pentoses are abundantly represented in vegetable structures, not as such, but in the form of complex anhydrides known as pentosanes.

In 1892 Salkowski and Jastrowitz[33] described the case of a young man, neurasthenic and the victim of the morphia habit, whose urine gave the reduction tests for sugar, did not ferment with yeast, was optically inactive, but yielded an osazone the melting point of which was 159° C. The melting point of the osazone suggested that the sugar present was a pentose, although no compound of that class had previously been recognised as a product of animal metabolism nor as a constituent of animal tissues. Further investigation confirmed this conjecture and thus was laid the foundation of our knowledge of pentosuria. Soon afterwards Hammarsten demonstrated the presence of a pentose in the pancreas, and since then the presence of such a substance in the nucleo-proteins of various tissues and organs has been practically proven, although the demonstration is not so complete as in the case of the pancreas. Neuberg has identified the pancreatic pentose as l. xylose.

The power of the normal human organism to destroy pentoses is very limited, and quite small doses, such as a gramme of arabinose or even less, lead to the appearance of some of the sugar in the urine. Different observers have found that the fractions excreted varied widely, and the destruction may be in part effected in the alimentary canal before absorption.

Seeing that many vegetable foods are rich in pentosanes it is not surprising that some degree of alimentary pentosuria is occasionally induced by their free consumption, but the quantities excreted after the eating of such fruits as plums and cherries, even in abundance, is very small, and delicate tests are required for their detection. Such an alimentary pentosuria, which is wholly distinct from the so-called essential pentosuria, is little likely to lead to diagnostic errors, but von Jaksch[34] has found that when the unfermented fruit juices, which are popular beverages on the continent, are taken, in such quantities as a litre or more, the next passed urine yields Trommer's and Nylander's tests and also the special tests for pentoses. Under such conditions the sugar excreted is the l. arabinose contained in fruits and the urine rotates the polarised ray to the right. Hence it is evident that the presence of a pentose in urine in quantities easy of detection is not necessarily due to an error of metabolism, but may be of accidental alimentary origin.

Again, Kulz and Vogel[35] found that from some diabetic urines there may be obtained by means of phenyl-hydrazine, in addition to glucosazone, an osazone soluble in hot water, which has the melting point and nitrogen content of a pentosazone. Only small yields of this product were obtained when quantities of urine amounting to several litres were so treated, and other observers have failed to detect pentose in diabetic urines, and among them Bendix,[36] who employed the same method as was used by Kulz and Vogel. It would appear, indeed, that the presence of pentose in diabetic urines is a rare phenomenon and that it has no direct bearing upon the pathology of essential pentosuria. On the other hand, it should be mentioned that Kulz and Vogel found a pentose in the urine of dogs rendered diabetic by removal of the pancreas, but the actual nature of the 5-carbon sugar excreted in such circumstances, and in human diabetes, has not been determined.

The case studied by Salkowski and Jastrowitz[37] has not remained an isolated one, and of quite recent years such observations have been multiplied, so that some 30 cases of essential pentosuria are now on record. The great majority of the recorded cases have been met with in Germany, especially at watering-places to which patients with the milder forms of diabetes are wont to resort, and the three cases recorded in America have been in patients of German or Russian birth.[38] In this country no case has yet been described. There can be little doubt that pentosuria is a very rare anomaly. An assiduous search carried out over several years by myself, and by others at my instigation, has failed to reveal a case, and eloquent testimony to its rarity is afforded by the fact, to which Dr. Pavy kindly allows me

[30] Hofmeister's Beiträge, 1904, vol. v., p. 321.
[31] Berichte der deutschen chemischen Gesellschaft, 1887, vol. xx., p. 339.
[32] Annalen der Chemie und Pharmacie (Liebig's), 1889, p. 254.
[33] Centralblatt für die medicinischen Wissenschaften, 1892, vol. xxx., p. 337.
[34] Centralblatt für innere Medicin, 1906, vol. xxvii., p. 145.
[35] Zeitschrift für Biologie, 1896, vol. xxxii., p. 185.
[36] Die Pentosurie, Stuttgart, 1903, p. 55.
[37] Loc. cit., sub. 33.
[38] T. Janeway: American Journal of the Medical Sciences, 1906, vol. cxxxii., p. 423. Kaplan: New York Medical Journal, 1906, vol. lxxxiv., p. 233.

to refer, that he has never met with an authentic example of the condition, and that those of his cases in which there have been grounds to suspect its presence have all been found on further investigation to be of other natures.

However, the rarity of pentosuria among us cannot be ascribed to any immunity of the Anglo-Saxon race, for there is evidence of a special frequency of the anomaly in Jews, and among the large Jewish population in our midst, both alien and native, it cannot fail to occur. Of 26 recorded examples no less than five are definitely stated to have been in members of the Hebrew race, and it is probable that other patients whose race is not mentioned would swell the proportion. Erben[39] quotes von Jaksch as saying that in his experience the majority of pentosurics are of Jewish origin. The tendency of pentosuria to occur in several collaterals of a family, and the great preponderance of males among its subjects, have already been referred to, and also the fact that the youngest recorded patient was a boy aged 15 years.[40] At least two patients have been over 60 years of age.

Pentosuria is not necessarily associated with any morbid symptoms. In some instances the detection of sugar at an examination for life assurance has been the first indication of anything amiss, but this is also true of not a few cases of mild diabetes. There is a growing opinion among those whose experience enables them to speak with authority on the subject that this anomaly is in itself harmless and calls for no treatment. The most recent writers suggest that it should be included in the class of which cystinuria and alkaptonuria are members. In a considerable proportion of cases there have been symptoms of neurasthenia, and if any morbid condition can be looked upon as specially associated with the urinary peculiarity it is this. However, race and racial temperament may here play no unimportant part, and the diagnosis of diabetes, usually made, may contribute to the result. Most pentosurics have been supposed to have diabetes and have been for a time treated accordingly.

The question of the existence of any relationship of essential pentosuria to diabetes is of considerable interest. There can be no doubt that from the metabolic standpoint the two are absolutely distinct, despite the fact already referred to that some diabetics excrete small quantities of pentose. It has been demonstrated that the pentosuric is as capable of dealing with ingested glucose as an ordinary individual; only when it is given in doses which suffice to overtax the power to destroy glucose which is possessed by a normal man does that sugar appear in his urine.

However, when we turn to the clinical evidence their independence of each other is less obvious. A certain number of the observed pentosurics have excreted glucose as well as pentose at times. The original patient of Salkowski and Jastrowitz did so, but in him the morphia habit may have been the exciting cause of the temporary glycosuria. One of Blumenthal's[41] patients was glycosuric, and so also was one of af Klerker's.[42] Some pentosurics have been members of diabetic families. Kj. O. af Klerker's patients were two brothers, Jews, whose father and another brother had diabetes. Schüler's[43] patient had a brother and two sisters who were diabetic, and in one of the cases described by Rosenfeld,[44] who lays special stress upon these points, the patient, whose father and brother had diabetes, developed pentosuria after being in a railway accident. The evidence of its recent development was afforded by the fact that an examination of his urine a year and three-quarters previously had revealed nothing abnormal. The pentosuria diminished as time went on. In this connexion also race may come into play, seeing that members of the Jewish race show a special liability to diabetes, but of those mentioned above af Klerker's patients are stated to have been Jews.

Clearly the correct diagnosis of cases of pentosuria is a matter of real practical importance. If it be not made the patient is not only subjected to the distress which the diagnosis of diabetes entails, but is subjected to irksome dietary restrictions which in his case are wholly uncalled for, are quite useless, and when not necessary are certainly undesirable. On the other hand, it is certainly better that a few persons who exhibit an anomaly so rare as pentosuria should be erroneously classed as diabetic than that a diagnosis of pentosuria on inadequate grounds should lead to the omission of treatment in a number of cases of true diabetes. In pentosuria the urine is not excessive in quantity, nor are the symptoms so often prominent in diabetic cases, such as thirst and undue appetite, met with in connexion therewith.

The specific gravity of the urine usually varies from 1·025 to 1·035 and when it is boiled with Fehling's solution it reduces, as does a diabetic urine containing some 0·5 per cent. of glucose. Many observers have described the reduction as delayed and as occurring suddenly after the test-tube has been removed from the flame. Urine containing small percentages of glucose may behave in this way, and Bial,[45] who has had an exceptionally large experience in this matter, states that, when fresh, pentose urines may show no such peculiarity of behaviour and that the reduction may occur before the boiling point is reached. He suggests that the delayed but sudden reduction so often observed is due to the urine having been kept for some time, with the addition of preservative substances, such as toluene or chloroform. The only specimen of pentose urine which I have had the opportunity of examining, for which I am indebted to the kindness of Professor von Jaksch, behaved in this manner, but it had been preserved for some long time under toluene. Pentose urines also yield Moore's test for sugar and that of Nylander, although not very strikingly, for the amount of the sugar present is never large. They also yield the saffranin test.

With the yeast test no fermentation occurs and after standing with yeast in a warm place for 24 hours the reducing power of the urine is not impaired. Kj. O. af Klerker lays special stress on this as affording a ready means of detecting pentose when present in association with glucose. In every case hitherto observed, with the exception of one of Luzzato's,[46] the urine had been optically inactive, unless glucose were also present. In Luzzato's case, in which it was clearly established that the sugar present was arabinose, the urine was dextro-rotatory.

With the phenyl-hydrazine test a crystalline osazone is obtained, but as it is to some extent soluble in hot water it is only thrown out in crystalline form after the liquid has cooled. In appearance the crystals closely resemble those of phenyl-glucosazone, but whereas the latter after recrystallisation melts at 205° C., the melting point of pentosazone is much lower, between 156° and 160° C. This melting point supplies one of the most important means of diagnosis of pentosuria, but to insure complete certainty as to its nature the nitrogen content of the osazone must be estimated. The theoretical amount for a pentosazone is 17·07 per cent. N.

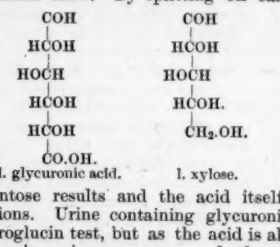
The special tests which are available for the detection of pentoses are based upon the property which such sugars possess of yielding furfurol when heated with mineral acids. The phloroglucin test is performed as follows: a small quantity of phloroglucin is dissolved in 5 or 6 cubic centimetres of fuming hydrochloric acid, a slight excess remaining undissolved. To one portion of the solution half a cubic centimetre of the urine to be tested is added in a test-tube, and to the other portion an equal quantity of normal urine as control. Both tubes are then placed in a beaker of boiling water. If pentose be present the test containing it quickly assumes a deep red colour from the surface downwards, whereas the normal specimen shows little change. The colour can be readily extracted by shaking with amylic alcohol, and the amylic extract, suitably diluted, shows a spectroscopic absorption band between the Fraunhofer lines D and E. More satisfactory for diagnostic purposes is the orcin test. A specimen of urine is warmed with an equal volume of concentrated hydrochloric acid in which enough orcin to cover a knife-point has been dissolved. A green colour quickly develops if pentose be present and the liquid becomes turbid by the formation of a bluish-green flocculent precipitate. After cooling the precipitate may be taken up with amyl alcohol, which acquires a rich green colour and shows a characteristic absorption band between

[39] Prager medicinische Wochenschrift, 1906, vol. xxxi., p. 301.
[40] Chobola: Centralblatt für innere Medicin, Abstract, 1907, vol. xxviii., p. 864.
[41] Berliner klinische Wochenschrift, 1895, vol. xxxii., p. 567.
[42] Nordiskt medicinskt Arkiv, 1905, Afd. ii., Heft 1., pp. 1 and 53.
[43] Münchener medicinische Wochenschrift, 1905, vol. lii., p. 1657.
[44] Medizinische Klinik, 1906, vol. ii., p. 1041.
[45] Berliner Klin k, 1907, Heft 226.
[46] Hofmeister's Beitrage, 1904, vol. vi., p. 87

the solar C and D lines. A second band nearer to the red end of the spectrum and a fainter band in green, which are often seen, are not of diagnostic importance.

Bial's[47] modification of the orcin test is very useful for clinical purposes. It is based upon the effect of the addition of ferric chloride in quickening the reaction. The reagent is prepared as follows: one gramme of orcin is dissolved in 500 cubic centimetres of hydrochloric acid of specific gravity 1·151 and to the solution 25 drops of a 10 per cent. solution of ferric chloride are added. The liquid when kept in an amber-coloured bottle will preserve its activity for a long period. Five cubic centimetres of the reagent are boiled in a test-tube and after the tube has been removed from the flame five drops of the urine to be tested are allowed to fall upon the surface of the liquid from a pipette. If pentose be present a green ring appears at the junction of the liquids, and if the tube be gently shaken the green colour spreads through the liquid. With the spectroscope the characteristic absorption band is seen. Care is required that the correct proportions be employed in mixing the reagent and the hydrochloric acid must be of the prescribed strength. If a pentose urine be not available the efficiency of the reagent may be tested with a dilute solution of gum arabic. I can testify, from my own experience, that the reaction so obtained is a very striking and characteristic one. By its means it is easy to exclude pentosuria in doubtful cases and it is easily applied in ordinary clinical work. Bial and also Kraft maintain that, if performed in the manner described, the test is diagnostic and is yielded by none but pentose urines. However, for the diagnosis of pentosuria one should not rely upon any single reaction and confirmatory tests should be applied.

The discrimination between pentosuria and glycosuria should present no real difficulty as glucose does not yield the above colour tests. It is in connexion with glycuronic acid that the risk of error comes in. Glycuronic acid has obvious chemical relationships to the pentoses as their respective formulæ show. By splitting off carbon dioxide



d. glycuronic acid. l. xylose.

from it a pentose results and the acid itself yields the furfurol reactions. Urine containing glycuronic acid may yield the phloroglucin test, but as the acid is almost always in combination in urine, as compound glycuronates, the reactions are not obtained until the combination is loosened. However, some compound glycuronates, such as the menthol compound, undergo spontaneous breaking up in urine.

It is not easy to make sure from the writings of those who have had most experience of these reactions whether in clinical work the risk of mistaking a urine containing glycuronic acid for a pentose urine is really great. It is stated that the orcin test is not yielded by compound glycuronates unless heating be unduly prolonged, and although Bial's reagent, if boiled with a urine containing a compound glycuronate, gives the green colour and the absorption band, it is claimed that no risk of confusion exists if the urine be added after the test-tube has been removed from the flame. With free glycuronic acid Paul Mayer[48] obtained crystalline phenyl-hydrazine compounds, one of which had a melting point like that of a pentosazone, but this is not yielded by compound glycuronates, and in case of doubt an estimation of the nitrogen in the crystalline product will settle the point.

Again, the polarimeter may help in the diagnosis, for all known compound glycuronates are lævo-rotatory, although the free acid is dextro-rotatory, whereas pentose urine is almost always optically inactive. Lastly, patients who excrete glycuronic acid in appreciable quantities are almost always taking some drug which is known to be excreted as a compound glycuronate. Nevertheless there is some doubt whether in certain cases[49] which have been described as examples of pentosuria the reducing property of the urine was not really due to glycuronic acid.

The most remarkable fact of all in regard to pentosuria is the optical inactivity of the excreted sugar. In one case Neuberg[50] succeeded in isolating the pentose from the osazone obtained from a large volume of urine treated with di-phenyl-hydrazine, and was able to identify it as racemic arabinose. Thus the pentose of urine stands out as the sole example of a racemic sugar occurring as such in the animal organism, and forms an exception to the rule that such organisms are built up of optically inactive materials. When racemic arabinose is administered by the mouth to a normal man it does not appear in the urine unchanged. Neuberg and Wohlgemuth[51] found that when 15 grammes of this sugar were so taken, the urine, which had previously contained no reducing substance, had been optically inactive and had failed to yield the orcin test, acquired after the lapse of four hours strongly reducing properties, was optically active, and gave the pentose reactions. Of the excreted arabinose, to which these properties were due, no less than two-thirds was the lævo-rotatory d. arabinose, and it was evident that the individual in question had a much greater power of destroying the ordinary l. arabinose than the other form. This observation only makes it the more remarkable that in pentosuria the racemic arabinose is excreted as such and alone. It is certain that essential pentosuria is not alimentary. This is fully proved by its persistence when all pentosane is excluded from the diet, and moreover the arabinose present in vegetable foodstuffs is always the dextro-rotatory l. arabinose and not the racemic sugar.

Nor can it be derived from the pentose contained in the nucleo-proteins of the food and body tissues. This is an entirely different sugar l. xylose, which cannot be supposed to become converted into racemic arabinose. Moreover, the quantity present in the body is too small to serve as a source of supply. Grund[52] estimated the total quantity in the human body at ten grammes and Bendix[53] makes it only slightly more. Lastly, Bial and Blumenthal[54] found no increase of pentose in the urine after feeding with 500 grammes of calf's thymus, and the uric acid and phosphate excretion of pentosurics affords no evidence of an abnormal breaking down of nucleo-proteins.

Our knowledge of the quantities of pentose excreted by pentosurics is very imperfect. The ordinary Fehling's method of estimation is not applicable to such urines because the cuprous-hydrate precipitate does not separate satisfactorily and other methods have to be resorted to, such as Allihn's, Knapp's, or weighing the phloroglucin precipitate. The estimated amounts in individual cases have differed widely—from one to seven grammes in the 24 hours—and Neuberg[55] states that all such estimates are too low, sometimes by 100 per cent., because much of the pentose is in combination with urea as a ureide, and the portion so combined does not reduce until the ureide is broken up by heating with an acid. In view of the uncertainty which surrounds this matter it is obviously impossible as yet to draw any conclusions from the published figures obtained by various methods in different cases, as to the constancy or otherwise of the output. The quantity estimated—viz., the uncombined arabinose—may represent no constant fraction of the total amount. Neuberg[56] mentions from 30 to 36 grammes as the figure which may be reached by the day's excretion, which is far more than twice as much as any other recorded estimate with which I am acquainted.

Exclusion of carbohydrate from the diet has been shown to have no influence upon the pentose output, as estimated by reduction tests, nor is the pentosuric less able to burn dextrose and lævulose than a normal subject. Still more remarkable is the fact, ascertained by Bial and Blumenthal,[57] that even when five grammes of l. arabinose were administered to a pentosuric by the mouth, the amount of the optically active arabinose excreted was no greater than when a like dose is administered to a normal man. Just as a

[47] Deutsche medicinische Wochenschrift, 1902, vol. xxviii., p. 253.
[48] Zeitschrift für physiologische Chemie, 1900, vol. xxix., p. 59.
[49] Caporelli: Riforma Clinica e Terapeutica, 1896, i.; Colombini: Monatshefte der praktischen Dermatologie, 1897, vol. xxiv., p. 129.
[50] Berichte der deutschen chemischen Gesellschaft, 1900, vol. xxxiii., p. 2243.
[51] Zeitschrift für physiologische Chemie, 1902, vol. xxxv., p. 41.
[52] Zeitschrift für physiologische Chemie, 1902, vol. xxxv., p. 111.
[53] Die Pentosurie, Stuttgart, 1903, p. 20.
[54] Deutsche medicinische Wochenschrift, 1901, vol. xxvii., p. 349.
[55] Pathologie des Stoffwechsels (von Noorden), second edition, 1907, vol. ii., p. 220.
[56] Ibid., p. 221.
[57] Loc. cit., sub. 54.

cystinuric destroys cystin given by the mouth so the pentosuric is able to destroy the usual proportion of a dose of l. arabinose when so given. From this it is clear that, even if any treatment of pentosuria is called for, no good purpose is served by restriction of the carbohydrate nor even of the pentose intake.

Neither is there conclusive evidence that the excretion of pentose, as estimated by reduction tests, is influenced by protein food. However, Kj. O. af Klerker, in the course of an elaborate series of observations, found that the output varied much during the day and that the pentose curve from hour to hour followed that of nitrogen. One of his Jewish patients excreted only half his average output of pentose during the day following the rigid fast of the Day of Atonement, to which an abnormally low nitrogen on the same day also bore witness. Bial and Blumenthal found that the blood of a pentosuric patient gave the orcin reaction, and concluded that pentose was present therein. Thus a renal origin is apparently excluded, and their patient also reacted in the ordinary manner to the phlorhizin test of renal efficiency.

The conclusion appears to be inevitable that the racemic arabinose of pentose urines is derived from some substance formed within the organism, and that glucose is not this parent substance. C. Neuberg has suggested[58] that the most likely parent substance is d. galactose, but himself points out that the evidence in favour of this hypothesis is purely circumstantial, and that no direct proof of its correctness is forthcoming.

By a series of changes with glycuronic acid as an intermediate stage, the pentose of nucleo-proteins, l. xylose, can be derived from d. glucose, and l. arabinose stands in a like relation to d. galactose. Moreover, Neuberg points out that on account of the symmetry of the groupings upon its four middle carbon atoms d. galactose is readily converted into optically inactive derivatives, mucic acid by oxidation, and dulcite by reduction. By converse treatment these products are reconverted into galactose but into the racemic form. On this account Neuberg finds it easier to suppose that this particular sugar may be the parent substance of the racemic arabinose of pentosuria. The formation of d. galactose in the animal body is an undoubted fact; lactose, the disaccharid formed from glucose and galactose, is abundantly formed during lactation, and galactose has also been shown by Thierfelder[59] to be the sugar yielded by cerebrin.

So far no conclusive evidence is forthcoming that galactose administered as such by the mouth, or in lactose, has any appreciable effect upon the output of arabinose by a pentosuric, nor are there any recorded observations upon a female pentosuric during lactation. Blumenthal and Bial gave to their patient 100 grammes of galactose by the mouth, not with any idea of testing Neuberg's hypothesis, which had not then been put forward, but observed no conspicuous increase of urinary pentose. Kj. O. af Klerker,[60] who gave 100 grammes of lactose to one of his patients, observed a distinct increase of the hourly output of pentose six or seven hours later, but the total day's excretion was in no way excessive. Tintemann[61] observed a slight increase of pentose in the urine after 50 grammes of galactose given on an empty stomach.

Obviously much further patient research is necessary before our knowledge of this remarkable anomaly of metabolism can be placed upon a satisfactory footing, and we may hope that to this research British workers will, in due course, contribute their quota.

And now the time allotted to me is exhausted, and it only remains to thank you, Mr. President, and my other hearers, for the kind attention accorded to me. The learned Dr. Croon, in memory of whom these lectures were established, placed upon the title-page of his tract, "De Ratione Motus Musculorum," some words of Aristotle, "*ἐν πᾶσι τοῖς φυσικοῖς ἔνεστί τι θαυμαστόν.*"[62] These words I would borrow as a motto for the present course; for if it be true that in every phenomenon of nature there is something of the marvellous, surely that factor is nowhere more in evidence than in the workings of the metabolic processes in living things.

[58] Ergebnisse der Physiologie, 1904, vol. iii., 1 Abtheilung, p. 426.
[59] Zeitschrift für physiologische Chemie, 1890, vol. xiv., p. 209.
[60] Loc. cit., sub. 12.
[61] Zeitschrift für klinische Medicin, 1906, vol. lvii., p. 190.
[62] *Περὶ Ζώιων Μορίων*, I. 5.

THE IMPORTANCE AND SIGNIFICANCE OF THE CHEMICAL EXAMINATION OF THE GASTRIC CONTENTS AFTER A TEST MEAL, WITH A NEW METHOD FOR ESTIMATING THE FERMENT ACTIVITY OF THE GASTRIC CONTENTS.

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IT is an undoubted fact that the chemical composition of the gastric contents varies considerably according to the pathological condition of the stomach. In other words, a particular disease of the stomach is associated with a gastric content of a particular type, and the analysis of this bears a definite significance. If follows, therefore, that the importance of the chemical examination of the gastric contents is very great. Every case presenting definite dyspeptic symptoms of an obstinate type which resists the usual simple lines of treatment should be investigated on chemical lines. It is only by this means that reliable information can be gained as to the exact pathological condition present in the stomach and that in many cases a definite diagnosis can be arrived at. When this is done the line of treatment to be adopted is clearly foreshadowed and is most likely to be productive of good results. The failure of treatment of many cases of obstinate dyspepsia is due to the fact that the gastric contents of the particular case have not been properly investigated and that the remedies employed are ill adapted for the conditions obtaining in the case. There is no doubt that the importance of the examination of the gastric contents in cases presenting persistent gastric symptoms is not sufficiently recognised. It cannot be too strongly insisted upon that in all such cases a thorough examination should be made, and the diagnosis and treatment will then be placed on a sure foundation. In other branches of medicine the importance of scientific investigation is well recognised. Thus in blood diseases the first thing thought of is an examination of the blood. In bacterial infections the blood and excreta are immediately investigated for evidence of the causal organism. In kidney disease the urine is immediately and regularly examined and the importance of this procedure is clearly recognised. In like manner in gastric diseases it is of equal importance that the gastric contents should be thoroughly and systematically investigated.

In the standard text-books on medicine one finds lengthy and verbose descriptions of the symptoms, treatment, &c., of the various forms of dyspepsia and gastric diseases, but to the all-important point, viz., "What is the nature of the gastric contents?" in the particular gastric affection discussed, little or no reference is made. This method of considering gastric diseases is, to say the least, most unscientific, and it cannot be expected that our knowledge on the subject will advance unless the methods of investigation are placed on a sound scientific basis. The thorough and systematic examination of the gastric contents in the various forms of dyspepsia and gastric diseases will undoubtedly greatly increase our knowledge of this most important branch of medicine, and, in addition, it is sure to be attended by much greater success in the treatment of cases.

I do not propose in this paper to deal with the description of the analytical details of methods which have already been published,[1] but rather to deal with the importance and significance of the results obtained. I intend to describe in some detail a new method which I have introduced for estimating the ferment activity of the gastric contents, as this has not yet been published. When a case comes under treatment the patient should be kept on a liquid or light diet for two or three days before a test meal is given, and no drugs should be administered during this period. Then a test meal is given in the morning before food is taken, and the gastric contents are drawn off in from one to one and a half hours. The test meal I prefer is a pint of very weak China tea, with

[1] W. H. Willcox, THE LANCET, June 10th, 1905, p. 566.

a little milk and sugar to taste. A round of thin buttered toast should be taken with this. The advantage of the toast is that the dextrin contained in it acts as an efficient stimulus to the gastric glands, and also the solid particles act as a stimulus to the pyloric sphincter and prevent the contents of the stomach being passed on too quickly into the duodenum. Another advantage of the test meal is that very little proteid and nitrogenous bases are present and therefore much of the hydrochloric acid secreted by the stomach may be present as the free acid. Hence every opportunity is given in a case, say of gastric carcinoma, for the HCl to be present as free HCl, and thus the absence of free HCl in such a case is important evidence.

As I have elsewhere shown, proteid and nitrogenous bases combine with large quantities of HCl, and hence if a test meal contains eggs, beef tea, meat, or much milk, &c., there is little chance of the gastric contents containing free HCl, and its absence is evidence of no importance whatever after such a test meal. The gastric contents should always be drawn off without dilution. This can readily be done by passing a long soft stomach tube, size No. 11–23, and having attached to the end, by a piece of glass tubing, rubber tubing about 24 inches long. If the air is withdrawn from the tube by suction with an ordinary large male syringe the syphon action is readily started. As much as possible of the gastric contents should be obtained. If the contents are diluted, as is often recommended, by starting the syphon action by the pouring of water into the tube by means of a glass funnel, the quantitative analysis is, of course, worthless, since the degree of dilution is unknown. The quantity obtained should be noted. In pyloric obstruction and in dilatation of the stomach it will be increased. When the stomach is normal in size and there is no obstruction about three or four ounces are usually obtained.

General appearances of contents.—The colour and viscidity, &c., are noticed. In gastric carcinoma and mucous gastritis the contents are viscid and slimy and filter badly. In gastric ulcer and hyperchlorhydria the contents are thin and filter quickly. The appearance of blood and bile can usually be recognised, and further tests should be applied. In gastric ulcer altered blood is sometimes present. The gastric contents should be filtered and the filtrate used for the detailed analysis.

I. *Total acidity.*—This is an estimation which should always be done, but too much importance must not be attached to the result. The all important point is, what is the nature of the acid—e.g., is it active HCl or is it a mixture of this and organic acid? Usually in chronic gastritis the acidity is low. In congenital pyloric stenosis it is low usually. In hyperchlorhydria and in gastric ulcer it is high. In gastric carcinoma the acidity is usually low; however, in some cases of pyloric carcinoma the acidity may be normal or even above normal. In these the high acidity has always, in my experience, been due to the presence of much organic acid. Hence a normal acidity of the gastric contents does not exclude gastric carcinoma and further investigation is necessary.

II. *Hydrochloric acid.*—This may be present as (*a*) free HCl; (*b*) HCl combined with proteid and organic bases (in these two conditions the HCl is *physiologically active*); or (*c*) HCl combined with inorganic bases—e.g., sodium chloride. This latter variety is usually due to inorganic chlorides in the diet, and therefore needs no consideration; it is physiologically *inactive* in digestion.

(*a*) *Free HCl.*—The most trustworthy test for this is Gunzberg's. The di-methyl-amido-azo benzene test of Topfer is good, but may be given by organic acids if present in large amount, and is therefore less trustworthy. If the latter test is negative Gunzberg's test need not be tried; if positive confirmation by Gunzberg's test is necessary. As already pointed out, the fact of there being free HCl or not in the gastric contents simply depends on how much proteid and nitrogenous bases are present; if much are present there will be no free HCl, if little then free HCl may be present. Hence too much importance must not be attached to the presence or absence of free HCl. Free HCl is physiologically of no more importance than HCl combined with proteid and nitrogenous bases. The presence of free HCl is no evidence of excess of active HCl. The absence of free HCl is no evidence of diminished quantity of active HCl. The conditions of obtaining the gastric contents should be such as will give the HCl an opportunity of being present in the free state. If this be the case then in normal gastric contents free HCl will usually be present. In gastric ulcer and hyperchlorhydria it is always present. In gastric carcinoma it is scarcely ever present, the reason being that the mucin present in the gastric contents combines with the HCl as fast as it is secreted, and also of course because the output of HCl is much diminished in gastric carcinoma. In my gastric analyses of children scarcely ever was free HCl obtained; the reason of this is that milk was used as the test meal and the proteids of milk had combined with the HCl.

(*b*) *Active HCl*, that is HCl free and combined with proteid and organic bases. This is the most important estimation of all in the analysis of the gastric contents. A method which I described three years ago[2] has been used in all my work and I have found it give all that is to be desired as regards accuracy and its adaptation to clinical work. It is a modification of Volhard's method of estimating chlorides. Two equal quantities of gastric contents are taken, one is rendered alkaline with caustic soda; both are evaporated to dryness and ignited. In one case the total HCl, active and combined with inorganic bases, is obtained. In the other case the HCl combined with inorganic bases only is obtained. The difference gives the active HCl. In gastric ulcer and hyperchlorhydria the active HCl is equal, or nearly equal, to the total acidity and is usually over 0·15 per cent. In gastric carcinoma the active HCl has always been reduced in my analyses and usually much reduced. I have found it always under 0·1 per cent. and usually much below this. In chronic gastritis the active HCl is often below the normal. The normal amount of active HCl is about 0·15 per cent.

The hydrochloric acid in the gastric contents when there is cancer elsewhere than the stomach but not in the stomach.—It has been stated that in this condition the free HCl is considerably reduced in the gastric contents. Professor Moore and Dr. A. S. Morton Palmer quote cases in support of this. It has also been suggested that the active HCl is much reduced. In my opinion there is no evidence that the active HCl of the gastric contents is necessarily reduced by cancer of other organs. As I have pointed out, it is absurd to draw a distinction between free HCl and HCl combined with proteid. Therefore the presence or absence of free HCl is of no value as evidence. The important question is, "What is the amount of active HCl present?" The active HCl has not been estimated in the cases quoted as suggesting a reduction in the hydrochloric acid due to cancer of other organs. I can quote positive evidence to the contrary—viz., that in some cases of cancer of organs contiguous to the stomach—e.g., the pancreas, transverse colon, liver, &c.—the active HCl has been found normal and free HCl sometimes present. (*Vide* Table IV., Nos. 1, 3, 4, and 5.) There is no doubt that in some cases of advanced carcinoma with much cachexia the secretion of hydrochloric acid by the stomach would be diminished, as would be the secretion of other glands, the diminution being due to the toxæmia associated with the carcinoma and no doubt often the result of a secondary bacterial infection in the carcinomatous tissue. I do not consider that in early or uncomplicated carcinoma of organs other than the stomach the hydrochloric acid of the gastric contents is necessarily diminished.

III. *Organic acid.*—Lactic acid should be tested for. It is usually present in gastric carcinoma, but I do not think that great importance should be attached to the presence or absence of this substance. It may be absent in gastric carcinoma. It may be present in simple gastritis and dilatation of the stomach. It is usually absent in gastric ulcer and hyperchlorhydria, but not always. The total organic acids may be sufficiently judged by the difference between the active HCl and the total acidity. They are present in considerable amounts in carcinoma of the stomach and conditions where much bacterial fermentation is going on in the organ.

IV. *Mucin.*—The presence of this substance in the filtered gastric contents is of considerable importance in many conditions. In gastric ulcer and hyperchlorhydria it is usually absent. In gastric carcinoma a definite precipitate is obtained on the addition of 2 per cent. acetic acid. In congenital pyloric stenosis I have found it always present in definite amount. In simple gastritis it is often present in small amounts.

[2] THE LANCET, June 10th, 1905, p. 1566.

V. *Sulphocyanides* should be tested for. If mucin is present and a well-marked reaction for sulphocyanides given then the importance of the presence of mucin is discounted by the fact that it may come from the saliva. If no sulphocyanides are present or only slight traces, and a definite precipitate of mucin is obtained, then this latter is important evidence. Sulphocyanides are usually absent from the gastric contents of children. I have found sulphocyanides frequently present in the gastric contents in carcinoma of the stomach and do not think that the absence of a reaction for sulphocyanides is any evidence in favour of the diagnosis of gastric carcinoma.

VI. *Ferment activity.*—I have found that the estimation of this is of the greatest importance in the examination of

TABLE I.—*Gastric Ulcer.*

No of case.	Quantity (fluid ounces).	*Total acidity (per cent.).	Mucin in filtrate.	Lactic acid.	Free HCl.	Active HCl. (per cent.).	Ferment activity.	Remarks.
1	1	0·22	Absent	Absent	Present	0·22	High	Diagnosis confirmed by subsequent operation (gastro-enterostomy).
2	8	0·122	,,	,,	,,	0·122	,,	
3	3	0·122	,,	,,	,,	0·122	,,	
4	4	0·24	,,	,,	,,	0·24	,,	
5	2	0·175	,,	,,	,,	0·17	Very high	
6	8	0·189	,,	,,	,,	0·189	,,	
7	?	0·297	,,	,,	,,	0·29	Not determined	
8	?	0·263	,,	,,	,,	0·26	,,	
9	10	0·317	,,	,,	,,	0·317	Very high	Clinical diagnosis typical from symptoms.
10	11½	0·352	,,	,,	,,	0·35	High	
11	4½	0·328	,,	,,	,,	0·32	Normal	
12	10	0·276	,,	,,	,,	0·21	High	

* The total acidity was calculated in terms of HCl.

the gastric contents. I regard it as of almost equal importance to the determination of the active HCl. The methods usually described for this estimation are directed towards approximately determining the pepsin and pepsinogen present in the gastric contents. The following is a brief *résumé* of them.

1. *The coagulated egg-albumin test.*—Cubes of coagulated egg albumin 0·5 centimetre edge are prepared. One of these is placed in a test tube containing 4 cubic centimetres of

TABLE II.—*Gastric Carcinoma.*

No. of case.	Quantity (fluid ounces).	Total acidity (as HCl).	Mucin (in filtrate).	Lactic acid.	Free HCl.	Active HCl.	Ferment activity.	Remarks.
1	7	0·098	Present	Present	Absent	0·089	Very low	In all of these cases the diagnosis was confirmed by operation or necropsy.
2	½	0·08	,,	,,	,,	Not determined	,,	
3	1½	0·00	,,	,,	,,	0·00	,,	
4	?	0·087	,,	,,	,,	0·073	*Nil*	
5	1	0·00	,,	,,	,,	0·00	,,	
6	7	0·153	,,	,,	,,	Not determined	Very low	
7	15	0·182	,,	,,	,,	0·044	Low	
8	?	0·00	,,	,,	,,	0·00	*Nil*	
9	3	0·139	,,	,,	,,	0·03	Low	
10	?	0·15	,,	,,	,,	0·09	Not determined	
11	?	0·09	,,	,,	,,	0·04	,,	
12	?	0·04	,,	,,	,,	0·02	,,	

filtered gastric contents and one in a test tube containing 2 cubic centimetres of gastric contents and 2 cubic centimetres of 0·4 per cent. HCl. The two test tubes are placed in a water bath at 37° C. for half an hour and the digestive power is roughly gauged by the amount of coagulated albumin dissolved.

2. *The carmine-fibrin test.*—Three test tubes are taken containing respectively (1) 4 cubic centimetres of gastric contents; (2) 2 cubic centimetres of gastric contents and 2 cubic centimetres of 0·4 per cent. HCl; and (3) 2 cubic centimetres of gastric contents and 2 cubic centimetres of water. A few shreds of washed carmine fibrin are placed in each and the test tubes are incubated at 37° C. The test tubes are shaken every few minutes and the depth of red colour present indicates approximately the quantity of pepsin present.

3. *Leube's method.*—Where the digestive effect of the gastric contents is observed on carmine fibrin and coagulated

TABLE III.—*Mucous Colitis with Gastric Symptoms.*

No. of case.	Quantity (fluid ounces).	Total acidity.	Mucin.	Lactic acid.	Free HCl.	Active HCl.	Ferment activity.	Remarks.
1	2½	0·14	Faint trace	Absent	Present	Not estimated	Normal	Diagnosis made by characteristic symptoms and signs and confirmed by examination of fæces and urine.
2	1	0·237	Trace	,,	,,	0·215	Slight increase	
3	10	0·16	,,	,,	,,	Not estimated	Normal	
4	8	0·297	Absent	,,	,,	,,	,,	

egg albumin respectively as described above, control tubes are taken, pepsin being added to the gastric contents in them and the digestive power on carmine fibrin and egg albumin is observed. If the digestive power is greater in the control tubes a deficiency of pepsin in the gastric contents is indicated.

4. *Mett's method*, where fine glass tubes 1 to 2 millimetres in diameter are taken containing coagulated egg albumin. These are placed in the filtered gastric contents at 37° C. and the length of the column digested after ten hours is measured. The quantity of pepsin present varies as the square of the length digested.

The above methods of estimating the ferment activity (pepsin) of the gastric contents are useful, but they do not

TABLE IV.—*Stomach Normal.*

No. of case.	Quantity (fluid ounces).	Total acidity (per cent.).	Mucin.	Lactic acid.	Free HCl.	Active HCl	Ferment activity.	Remarks.
1	1¼	0·16	Absent	Absent	Present	Not estimated	Normal	Carcinoma of pancreas (post mortem).
2	11	0·135	Faint trace	,,	,,	0·073 per cent.	,,	Simple stricture of intestine (operation).
3	6	0·22	Absent	,,	,,	0·22 per cent.	,,	Carcinoma of colon (operation).
4	?	0·13	,,	,,	Trace	Not estimated	Not estimated	Ditto.
5	?	0·19	,,	,,	Present	,,	,,	Ditto.
6	5	0·155	,,	,,	,,	,,	,,	No disease elsewhere.

give an accurate quantitative measure of the amount of ferment present, and some of them are ill adapted for clinical purposes.

NEW METHOD FOR ESTIMATING THE FERMENT ACTIVITY OF THE GASTRIC CONTENTS.

By preliminary experiments I have found that the amount of rennin present in the gastric contents usually is proportionate to that of the pepsin, and I have devised a method

which is exceedingly simple and well adapted to clinical purposes by which the amount of rennin present can be estimated. It is as follows. Narrow test tubes, five inches by three-eighths of an inch, are taken; into each 5 cubic centimetres of fresh unboiled milk are added. They are placed in a water bath at 40° C. Into the tubes are placed seriatim gradually increasing quantities of the filtered gastric contents. These are run in from a pipette which is graduated in $\frac{1}{100}$ths of a cubic centimetre. Thus are added 0·01, 0·05, 0·1, 0·15, 0·2, 0·25, 0·3, 0·35, 0·4, 0·5, 0·6, 0·7, 0·8, &c., of gastric contents. The liquids are mixed by gently inverting each tube. The tubes are left 30 minutes in the bath and then it is found that above one point in the series the contents of the tube are solid and do not flow out on inversion, while below this point the contents are liquid and flow out on inversion of the tube. The minimum quantity of gastric contents to cause complete clotting so that the contents of the test tube do not flow out on inversion gives an accurate measure of the rennin activity.

TABLE V.—*Simple Gastritis.*

No. of case.	Quantity (fluid ounces).	Total acidity.	Mucin.	Lactic acid.	Free HCl.	Ferment activity.
1	6	0·067	Faint trace	Absent	Absent	Very low.
2	1	0·065	Present	,,	,,	Low.
3	1	0·062	Trace	Present	,,	Normal.

Thus in the normal gastric contents of adults about 0·2 cubic centimetre is required, while with children, normally, a greater amount is required. If X = the minimum quantity of gastric contents to cause complete clotting, then the quantity of rennin present in the gastric contents = $\frac{0·2}{X}$ of the normal amount; e.g., if 0·05 cubic centimetre of gastric contents was the minimum amount to cause complete clotting, the quantity of rennin present = $\frac{0·2}{0·05}$ = 4 times the normal. In gastric carcinoma usually much more is required—e.g., 0·5 cubic centimetre or more, possibly no complete clotting will occur

TABLE VI.—*Gastric Contents (Before and After Gastro-Enterostomy).*

No. of case.	Total acidity (per cent.)	Mucin.	Lactic acid.	Bile.	Free HCl.	Remarks.
1. Before operation	0·297	Absent	Absent	Absent	Present	Gastric ulcer found.
1. After operation	0·116	Present	,,	Present	Absent	
2. Before operation	0·232	Absent	,,	Absent	Present	Ditto.
2. After operation	0·14	Present	,,	Present	,,	
3. Before operation	0·19	Trace	,,	Trace	,,	Ditto.
3. After operation	0·05	Present	,,	Present	Absent	
4. Before operation	0·40	Absent	,,	Absent	Present	Ditto.
4. After operation	0·31	Present	,,	Present	,,	
5. Two years after operation	0·13	,,	,,	,,	Absent	Ditto.

at all. In gastric ulcer and hyperchlorhydria the rennin activity is usually higher than normal and never below normal; often 0·05 cubic centimetre or less causes complete clotting. In congenital pyloric stenosis the rennin activity is often high—e.g., 0·2 cubic centimetre or less will cause complete clotting. In the acid dyspepsia of children and marasmus the ferment activity is less than normal, and considerably greater quantities than 0·2 cubic centimetre are necessary to cause complete clotting. In cases where the acidity of the gastric contents is low, and also the ferment activity, I have found that frequently most of the ferment is present as renninogen and not as rennin. In these cases the above method of analysis should be adopted for the estimation of the rennin, and a separate estimation made for the rennin plus renninogen. The renninogen can be estimated by taking the gastric contents, adding an equal volume of 0·4 per cent. HCl which converts the renninogen to rennin. The same procedure is adopted as above—viz., the addition of the mixture of HCl and gastric contents in increasing quantities to the milk in the test tubes respectively and the minimum amount of the mixture which will cause complete clotting, so that the contents do not flow out on inversion, is noted. In the normal gastric contents of adults about 0·1

TABLE VII.—*Congenital Pyloric Stenosis (Children).*

No. of case.	Quantity in cubic centimetres.	Total acidity.	Mucin.	Lactic acid.	Free HCl.	Active HCl.	Ferment activity.	Remarks.*
1 (a)	60	0·044	Present	Present	Absent	0·029	High	Two analyses at different times.
1 (b)	42	0·050	,,	,,	,,	—	,,	
2 (a)	45	0·087	,,	Absent	,,	—	,,	Ditto.
2 (b)	46	0·10	,,	,,	,,	—	Normal	
3	32	0·15	,,	,,	,,	0·15	,,	—
4	20	0·21	,,	,,	Present	—	High	—
5 (a)	46	0·076	,,	,,	Absent	0·076	,,	Analysis at different times.
5 (b)	53	0·047	,,	Trace	,,	0·047	Normal	
6	?	0·07	,,	Absent	,,	—	,,	—
Cured Cases.								
1	55	0·18	Trace	Absent	Absent	0·175	High	Over a year after acute symptoms.
2	6	0·17	,,	,,	,,	—	,,	

* Numbers 1 to 6 had acute symptoms.

cubic centimetre when mixed with 0·1 cubic centimetre of 0·4 per cent. HCl is the minimum quantity which will clot completely 5 cubic centimetres of milk at 40° C. in half an hour; with children a greater amount is necessary. If X = the minimum quantity of the gastric contents which, when mixed with 0·4 per cent. HCl, will cause clotting (i.e., half the amount of the mixture taken), then the quantity of rennin plus renninogen present = $\frac{0·1}{X}$ of normal; e.g., if in a given case 0·1 cubic centimetre of the mixture of gastric contents and 0·4 per cent. HCl was the minimum amount to cause complete clotting, then since 0·05 cubic centimetre = the quantity of gastric contents in 0·1 cubic centimetre of mixture the quantity of rennin plus renninogen present = $\frac{0·1}{0·05}$ = 2 times normal. In practice with an incubating bath for 12 tubes it is easy to set on together the two series of tubes for estimating the rennin, and rennin plus renninogen. (It should be noted that the acid added in the latter series of tubes will not of itself produce a complete clot; it may cause a little curdling. Any complete clotting so that contents of tube do not flow out on inversion must be due to ferment.) Sometimes where the rennin is below normal the renninogen plus rennin are found to be normal. This would contra-indicate a condition such as gastric carcinoma. In congenital pyloric stenosis where the acidity is very low it is always necessary to estimate both the rennin and renninogen activity. Often the latter is considerable.

CONDITIONS IN WHICH THE GASTRIC CONTENTS HAVE BEEN INVESTIGATED.

The importance and necessity of a more frequent investigation of the gastric contents in gastric diseases have been insisted upon. With equal force it must be urged that the interpretation of the result of the analysis of the gastric contents cannot be of value unless taken in conjunction with

the clinical history and symptoms of the case. The one is supplementary to the other. A diagnosis supported both by analytical and clinical evidence is of great value, while either alone furnishes in many cases evidence which is not sufficient to support a certain diagnosis.

1. *Gastric ulcer and hyperchlorhydria.*—The condition of the gastric contents is indicated by the accompanying list of 12 recent analyses (Table I.). The ferment activity and total HCl are above normal. Free HCl is present in all; mucin is absent. The ferment activity is usually raised and never below normal. In Cases 1 to 8 the diagnosis was confirmed by operation. In Cases 9 to 12 the clinical symptoms and physical signs were so characteristic that the diagnosis was certain.

2. *Gastric carcinoma.*—12 recent cases selected (*vide* Table II.). The total acidity is usually subnormal. The active HCl is below 0·1 per cent. in every case and usually below 0·05 per cent. Free HCl is absent in all; mucin is present. The ferment activity is much below normal. In pyloric carcinoma often the acidity is normal or even slightly above, but the active HCl is below normal but higher than in carcinoma of the cardiac end of the stomach, when both the active HCl and total acidity are much reduced. The ferment activity is reduced but less so than in cardiac carcinoma where it is very low or absent. The diagnosis in all of these cases was confirmed by operation or necropsy.

TABLE VIII.—*Pyloric Spasm (Children).*

No. of case.	Quantity in cubic centimetres.	Total acidity.	Mucin.	Lactic acid.	Free HCl.	Ferment activity.	Remarks.
1	30	0·09	Trace	Absent	Absent	Low	Cases in Great Ormond-street Children's Hospital (clinical diagnosis).
2	28	0·11	,,	,,	,,	Very low	
3	5	0·14	,,	,,	,,	Rather low	
4	15	0·13	,,	,,	,,	Normal	
5	?	0·16	,,	,,	,,	Low	
6	?	0·18	,,	,,	,,	Normal	

3. *Mucous colitis.*—Four cases (Table III.). Dyspeptic symptoms are often present. In two of the cases there was hyperchlorhydria but not the increase of ferment activity usual in gastric ulcer. The analysis in these cases was important because gastro-enterostomy had been suggested as a remedy for the gastric symptoms. It was contra-indicated by the analysis of the gastric contents and other investigations on the fæces and urine.

4. *Stomach normal.*—Six cases (*vide* Table IV.). Free HCl was usually present. Total acidity 0·15 per cent. Active HCl about 0·15 per cent. Ferment activity normal. In these cases operations were done in five and the stomach was found normal, but other organs were affected. In four of these (Nos. 1, 3, 4, and 5) there was carcinoma of other abdominal organs.

5. *Chronic gastritis.*—Three cases (*vide* Table V.). Acidity low; free HCl absent. Active HCl low. Mucin a trace. Lactic acid may be absent. Ferment activity reduced usually.

6. *Gastric ulcer.*—Before and after gastro-enterostomy. Five cases (*vide* Table VI.). The list of cases well illustrates this. After operation free HCl is often absent. The total acidity and active HCl are much reduced (50 per cent.). Bile and mucin are present. It appears that after the operation bile finds its way into the stomach and by its alkalinity and the proteid present neutralises the HCl of the gastric contents. This may explain the remarkable cessation of symptoms which cases of gastric ulcer present after the operation.

TABLE IX.—*Marasmus (Children).*

No. of case.	Quantity.	Total acidity.	Mucin.	Lactic acid.	Free HCl.	Ferment activity.
1	?	0·09	Absent	Absent	Absent	Low.
2	22 c.c.	0·03	Present	Trace	,,	*Nil.*

CHILDREN.

With regard to children, diluted milk was given as the test meal usually (two or three ounces) and the contents were withdrawn by a soft Jacques catheter in half an hour.

7. *Congenital pyloric stenosis.*—Eight cases (two cured) (Table VII.). The quantity obtained is great—e.g., about 40 cubic centimetres or more. The total acidity and active HCl are low. Mucin was present in considerable amount. The ferment activity is high. (The ferment activity represents the enzyme and zymogen together; sometimes the enzyme is low but the zymogen is high.)

8. *Pyloric spasm (acid dyspepsia).*—Six cases (*vide* Table VIII.). The total acidity is fairly high. Mucin is absent or a trace only present. The ferment activity is low.

9. *Marasmus.*—Two cases (Table IX.). The total acidity and active HCl are low. The ferment activity is low.[2]

In conclusion, I wish to express my hearty thanks to all my colleagues at St. Mary's Hospital for the numerous opportunities given me of making these investigations and for the hearty encouragement accorded to the work. Dr. Miller, medical registrar at the Hospital for Sick Children, Great Ormond-street, has collaborated with me in the work relating to children and but for his help this portion of the work could not have been undertaken. My hearty thanks are due to him and to the staff of Great Ormond-street Children's Hospital and also to Dr. Leonard G. Guthrie for specimens from two of his cases from the Paddington Green Children's Hospital.

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MOTOR FUNCTIONS OF THE STOMACH (A) IN NORMAL CASES, (B) AFTER GASTRO-ENTEROSTOMY, AS DEMONSTRATED BY X RAYS.

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THIS communication is made in illustration of my paper on the subject which appeared in THE LANCET of Feb. 22nd last.[1]

"X ray" observation of the stomach after bismuth meals is probably the most satisfactory method of investigating the motility of that organ. The fluorescent screen is the best method of observation. A reliable tracing (made preferably by means of an orthodiagraph) is a better permanent record than a skiagram, in that the actual outline of the stomach can be more accurately represented, as the movements of the stomach caused by respiration produce blurring. It is probable that instantaneous skiagraphy will be very valuable in obtaining correct tracings. In some of Dr. J. R. Levack's excellent skiagrams most of the essential points are recorded and they are possibly more convincing to doubters, as they are less easily "faked."

After a study of such investigations it must be granted that the so-called vertical part of the stomach is normally functionally separate from the horizontal part, that food is retained in the vertical or cardiac portion for a very appreciable time (varying according to the nature of the food ingested) before being passed into the horizontal or pyloric part, and that definite mixing or churning of the food takes place during this period of retention. This is shown by the fact that when bismuth is given at the end of a fairly substantial meal it is to be seen at first on the top of the food mass. In about five minutes the bismuth becomes intimately mixed with the contents of the cardiac portion. On the other hand, food (+ bismuth) taken into an empty stomach apparently passes at once to the bottom of the cardiac part.

To judge from the peristaltic movements which one sees, the churning action takes place in the distal part of the

[2] Vide On Some Gastric Conditions in Wasted Infants, by R. Miller and W. H. Willcox, THE LANCET, Dec. 14th, 1907, p. 1670.

[1] Considerations Concerning the Functions of the Stomach and the Operation of Gastro-enterostomy, THE LANCET, Feb. 22nd, 1908, p. 549.

cardiac portion. Extraneous forces, such as gravity, movements of respiration, and the like, appear to influence the proximal part of the cardiac contents more than any peristalsis, which must be feeble in that part of the stomach. This proximal part seems to act as a sort of overflow reservoir to the distal part. In a normal stomach posture seems to have little or no effect on the food in the distal cardiac and pyloric portions. In a dilated stomach gravity has a marked effect on the position of food in these parts as well as in the proximal cardiac part.

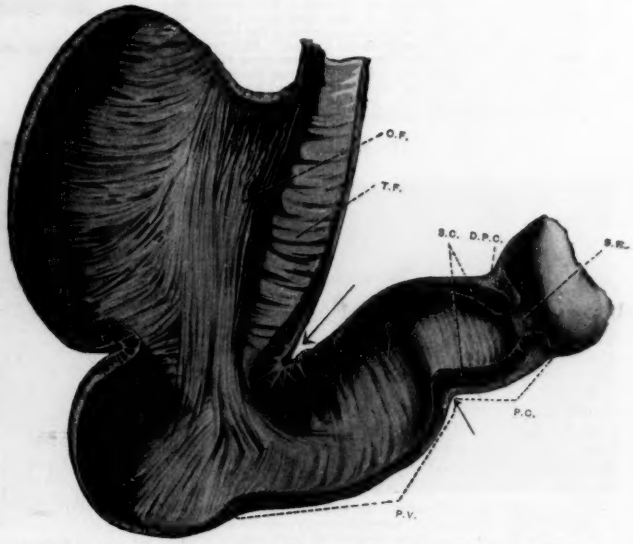
Pure carbohydrate food, such as arrowroot, is retained on an average for from 10 to 20 minutes before entering the pyloric portion. Proteid food, as minced meat, ham, or even eggs in any form, is retained for from 30 to 45 minutes or even longer. The ordinary light mixed meal, although it may be of a very digestible nature, such as was given in the majority of the cases observed, takes from three and a half to four hours to leave the stomach. It is possible that the presence of the bismuth may delay the process. The cardiac end is clear of contents a considerable time before the pyloric portion is empty. When gastro-enterostomy has been done in the way I have advocated in cases where the muscular action of the stomach is unimpaired, the time taken for emptying the cardiac end is practically the same. This is dependent chiefly on the fact that the physiological sphincter which should, I think, be called the sphincter aditus vestibuli, or perhaps for everyday use, the "middle sphincter," is not interfered with, and keeps the contents of the cardiac end back until they are in a fit condition to be allowed to pass into the pyloric portion. The position of this sphincter is indicated by a notch, which is very constant and very easily seen on the greater curvature where this is crossed by the continuation of the more or less vertical line of the lesser curvature of the cardiac portion. In passing, one is tempted to remark that the lesser curvature resembles a slightly acute angle, the point of which corresponds to His's *incisura angularis*, incidentally also to the upper end of the boundary line between the cardiac and pyloric portions of the stomach.

A second notch is usually apparent with the screen on the cardiac greater curvature, about three or four inches distant from the "sphincter" notch. It is not so well marked nor so persistent. Occasionally, opposite to it, on the "lesser curvature" is seen a faint evanescent notch. These two notches indicate the division between the proximal and distal parts of the cardiac portion. On the greater curvature I have failed to make out any peristaltic movement above the notch; below the notch such movement is easily seen taking place vigorously always towards the sphincter aditus. At the same time a tonic contraction apparently takes place, because this distal part of the cardiac portion becomes more distinct in outline and somewhat smaller in extent. The lower border of this part assumes a higher level relative to the umbilicus. This is no doubt partly due to the tonic contraction, but is likely to be due chiefly to the action of the oblique fibres. It is a tribute to the efficiency of the physiological sphincter between the two parts of the stomach that in spite of these muscular efforts no food passes into the pyloric end for some time.

When a mass of food gains access to the pyloric portion it is sometimes apparently carried at once to the pylorus. In some of the cases we have been fortunate in catching the condition of affairs which showed a very distinct rounded shadow at the pylorus with a practically clear interval between it and the main shadow of the contents of the cardiac portion. The pyloric tube between was only faintly outlined. The shadow at the pylorus soon became faint, the food mass having evidently dissipated itself backwards, since no shadow could be seen in the region of the duodenum. More usually, however, there seemed to be a gradual filling of the pyloric tube from left to right as shown by the dense shadow. Apparently the peristaltic waves at this stage did not carry more food towards the pylorus than was sufficient to faintly outline the tube. When, in the course of from 15 to 30 minutes, the whole tube cast a dense shadow, strong peristaltic waves could be seen. It was not certain that they acted in continuance of these initiated in the cardiac portion. The cardiac waves were at all events checked at the sphincter aditus vestibuli, which could be seen in strong contraction (evident by the deep notch) before their arrival. From time to time, when food probably passed along, the notch became less distinct.

The cardiac portion becomes empty apparently from above downwards. The most dense shadow is usually in the distal part. The shadow of the pyloric portion grows mottled soon after the cardiac end is emptied. The denser shadow, modified in shape at intervals by the peristaltic wave, is seen more and more markedly at the right extremity of the pyloric tube. In fact, the picture is the opposite of what we have most frequently seen as the pyloric tube is being filled. The tube as it empties becomes narrower. From the time that any shadow of this part is seen till the time that the shadow disappears again, the pyloric portion of the stomach never loses its tubular character. It looks, as I have said, like a hypertrophied piece of small intestine. The diameter of the tube accommodates itself to the amount of material in its interior.

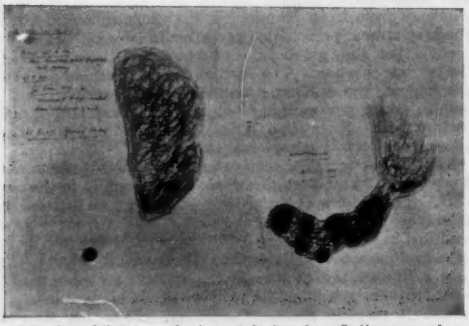
FIG. 1.



This illustration, which was kindly lent by Professor D. J. Cunningham of Edinburgh University to illustrate my first paper, represents the anterior half of a formalin-hardened stomach after removal of the mucous membrane. It is remarkable how closely the general form of this stomach is imitated by most of the tracings shown in the following figures, although Professor Cunningham describes it as an aberrant form. Personally, I think it is the normal form.

After gastro-enterostomy has been done in a stomach the motor power of which has not been impaired I find that the first part of the digestive process is unaltered. There seems also to be very little change, except as regards the time occupied, in what takes place in the pyloric portion. The food seems to be carried along to the pylorus as before, passing over the stoma *at first apparently*. It seems almost as if the pressure within the pyloric tube must rise above a certain limit before food begins to pass out at the lateral stoma, which undoubtedly it can be seen to do. One of the appended tracings (Fig. 9) is made from a case of gastro-enterostomy for ulcer of the pyloric end of the stomach. There was neither actual pyloric stenosis nor gastrectasis present. Yet the shadow showed the food *preferring* to leave the pyloric tube *viâ* the lateral stoma rather than through the pylorus. I begin to think that the retrograde passage of duodenal juices through this stoma during pyloric digestion may be mythical in such cases, and hence, as previously

FIG. 2.

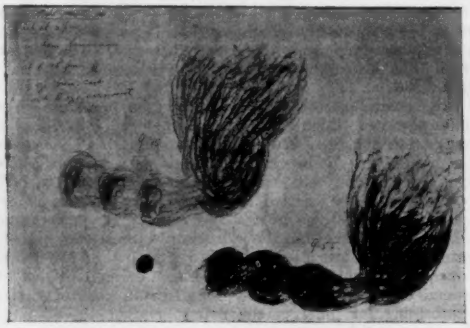


A tracing of the stomach of an adult female. Ordinary meal (dinner—soup, beef and vegetables, pudding) at 6 P.M. At 8.30 P.M., two ounces of bismuth carbonate in arrowroot, washed down with half a glass of milk. The tracing on the left was made at 8.45 P.M. and that on the right at 9.40 P.M. The dark spot marks the position of the umbilicus (a coin was fixed thereon by sticking plaster). This tracing shows how absolute the differentiation between the two parts of the stomach is, and that even during the digestion of the chief meal of the day there is no ebb and flow between cardiac and pyloric portions. Most of the points mentioned in the text are to be noted in this illustration.

FIG. 4.

Tracing—a boy, aged 14 years. At 7.30 P.M., two ounces of bismuth carbonate with minced meat and bread. At 8.30 P.M. only a very small amount of food had entered the pylorus. The differentiation by the middle sphincter, the usual process observed of filling of the pylorus, the two notches on the greater curvature, and the elevation of the lower part of the cardiac portion are well seen. The second and third tracings were made at 9 P.M. and 9.35 P.M. respectively.

FIG. 6.

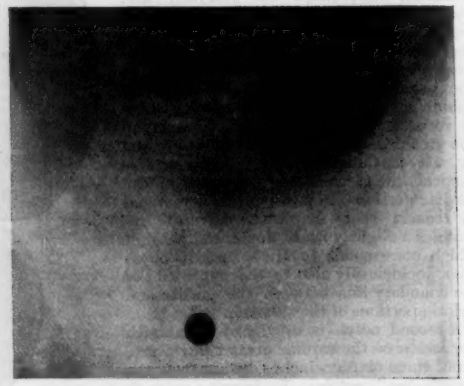


Tracing—male adult, 34 years of age. A meal at 6 P.M., of tea, ham, and farinaceous food. At 8.45 P.M., two ounces of bismuth with six ounces of arrowroot. First tracing at 9.15 P.M.; already a fair amount of bismuth in pyloric portion; peristalsis well marked. Gradual emptying of cardiac end, notches in greater curvature, and comparison between the cardiac sac and pyloric tube are well shown.

FIG. 3.

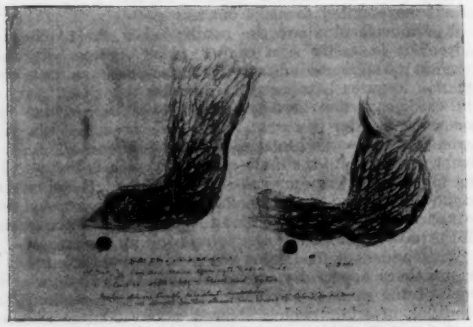
Skiagram taken directly after the first of the tracings in Fig. 2.

FIG. 5.



Skiagram corresponding to the second tracing on Fig. 4.

FIG. 7.

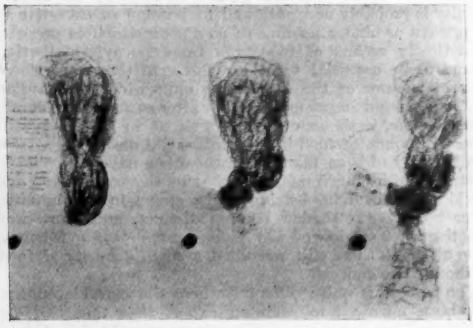


Tracing—adult male, aged 39 years. At 7.45 P.M., two ounces of bismuth washed down with a glass of milk and coffee, egg, and bread-and-butter. First tracing at 8.50 P.M., second at 9 P.M. Shows how the shape of the stomach may alter in a few minutes. Notch on lesser curvature seen during peristalsis of distal part of cardiac portion. In the upright posture the lower border of the pyloric portion was one and a half inches below the umbilicus. There was a history of previous stomach trouble, persistent dyspepsia, in this case.

FIG. 8.

Skiagram taken between 8.50 P.M. and 9 P.M. of stomach outlined in Fig. 7.

FIG. 9.

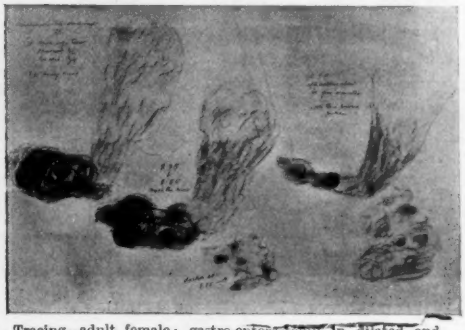


Tracing—adult female; gastro-enterostomy; no dilatation or pyloric obstruction. At 6.30 P.M. two ounces of bismuth in arrowroot, with milk, and egg and toast. First tracing at 6.45 P.M. At 6.57 P.M. there was a faint shadow in the pyloric portion. At 7.6 P.M. there was no apparent difference, but at 7.12 P.M. there was a decided shadow and at 7.15 P.M. the second tracing was made. In the latter the pyloric tube beyond the anastomotic stoma is faintly outlined; food is seen to be leaving the stoma. In the third tracing at 7.45 P.M. these details are more marked. Note the resemblance between the first tracing here and that in Fig. 2. See text.

FIG. 10.

Skiagram corresponding to first tracing in Fig. 9 taken a few minutes after the tracing was made. There is a very faint shadow corresponding to the pyloric portion indicating possibly that food had begun to pass the "middle sphincter." The black round shadow at the lower part of the cardiac portion is made by a button of the dress.

FIG. 11.

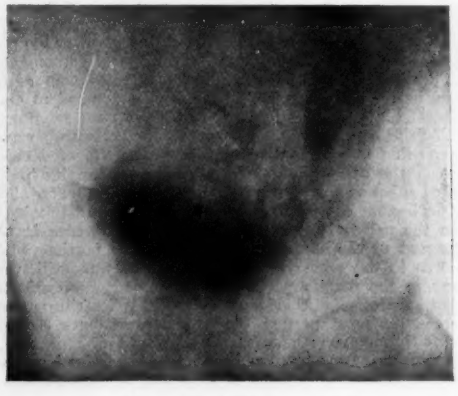


Tracing—adult female; gastro-enterostomy in dilated and atonic stomach with nearly complete duodenal obstruction. At 7.50 P.M., two ounces of bismuth in six ounces of arrowroot, with milk, and egg and toast. At 8.10 P.M. first tracing made. At 8.35 and 8.55 P.M., second tracing; the appearances were much the same. The stoma was evidently "hidden" by the shadow of the pyloric portion (cf. Fig. 9). The "segmentation" of the food in the small intestine was well seen. Third tracing at 9.10 P.M., after the patient had walked about for five minutes. See text.

FIG. 12

Skiagram of Tracing 1 shown in Fig. 11.

FIG. 13.



Skiagram of Tracing 2 shown in Fig. 11.

indicated,[2] mere neutralisation of hyperacidity is not the only cause of the usually immediate relief from the pain of ulceration. After a correct gastro-enterostomy the gastric acidity is probably never allowed to become so excessive as to prevent or hinder healing of any ulcer which is present. The timely escape of foodstuffs from the pyloric portion seems to be essential to insure this. In the cases where muscular power of the stomach is unimpaired the cardiac portion does not empty more quickly after gastro-enterostomy. For example, in the case already referred to there was still a small amount of food in the cardiac end four hours after a light meal had been taken. On the other hand, the pyloric portion empties much more quickly; in the case quoted one could see the contents leaving by the stoma in five minutes after the pyloric shadow became distinct, and there was practically no shadow of the pyloric canal after four hours, even although there still remained a small quantity of food in the cardiac end.

The process is quite different where the muscular power has been impaired to such an extent that the "middle sphincter" has been more or less permanently crippled in function. This condition may exist after excessive and prolonged dilatation of the stomach from pyloric or duodenal

FIG. 14.

Skiagram of Tracing 3 shown in Fig. 11.

obstruction. The muscular tone, once lost, may never be properly regained. Although after gastro-enterostomy the stomach shrinks in size—a passive *re*traction taking place—yet active *con*traction may not occur except in those parts which had become hypertrophied and had escaped the atrophy due to prolonged dilatation. Such hypertrophy and contractility are most marked near the pylorus.

Atrophy and relaxation are most noticeable in the cardiac end of the dilated stomach. Roughly speaking, the muscular tone is liable to be lost progressively from the cardiac orifice to the pyloric sphincter and to be regained in reverse order, so that the middle sphincter may recover its action if the dilatation has not been too great or too prolonged—otherwise its function may become permanently inhibited. The latter state is seen in the stomach represented in Fig. 11. Food, when swallowed, passed at once unchecked into the pyloric portion. As more was swallowed it filled the cardiac part. No notches or peristaltic waves were visible in the cardiac part or at the site of division between the cardiac and pyloric portions. Gravity had a marked effect on the position of the stomach contents. The shadow became considerably diffused over the cardiac "bag" when the patient was supine, and became intense in the lower part of the cardiac and in the pyloric portions when she was in the erect posture. Peristalsis was still very strong in the pyloric portion and the food was evidently churned there for a considerable time. When the patient assumed the erect posture the stomach contents escaped quickly through the stoma.

Such observations reasonably indicate the following post-operative treatment in cases of excessive dilatation in order to obtain the greatest good from such gastric juices as may still be secreted. (1) Prevent gorging—in the absence of the middle sphincter and sufficient cardiac peristalsis there cannot be efficient mixing of the food with the acid cardiac juices. The larger the quantity of food ingested, the less satisfactory will the mixing be. (2) Recommend rest after meals, especially after the chief meal of the day. The supine position should be assumed for half an hour at least so that the food is prevented from gravitating toward the pyloric stoma and being prematurely evacuated from the stomach. 3. Caution against eating just before retiring to bed, as after the patient lies down food may remain overnight in the flaccid atonic cardiac portion and give rise to nausea, heaviness, headache, &c., in the morning. These directions will insure the *best* results, and from time to time some such regulations are necessary. The unspeakable relief afforded by gastro-enterostomy to patients with dilated stomachs sometimes tempts them to excess in eating and drinking for which they suffer. The surgeon, curiously, is frequently blamed for the result of such excess.

In submitting the accompanying illustrations I beg to point out that, up to the present, I consider that a tracing of the shadow on the fluorescent screen is a more accurate representation of the condition of the stomach than is a skiagram, in which the shadow is broadened and blurred owing to the movements of respiration. The skiagrams which are given suffice to show that the tracings are truthful. With improved methods and with larger quantities of bismuth I have no doubt that much better results will soon be obtained. The *pure* carbonate of bismuth seems to be an innocuous salt. Poisonous symptoms recorded by some observers may have been due to impurities in the samples of bismuth used.

In conclusion, I repeat the following observations. 1. The stomach is, naturally, not of the usually accepted shape. 2. It is an organ of two compartments, cardiac and pyloric, the division between these being a physiological sphincter. 3. These two compartments act in great part independently. 4. During digestion the cardiac portion maintains to a great extent its saccular form, its distal part only being affected by visible peristalsis, while the pyloric portion is tubular and affected by strong peristaltic waves along its whole extent. 5. In order to maintain or restore physiological conditions as far as possible the stoma in the operation of gastro-enterostomy should be made in the pyloric tube. I do not pretend to introduce any *new* procedure. My observations have been made with the object of indicating scientific justification and therefore the necessity for the careful selection of the pyloric tube as the site of the stoma in this operation. J. B. Murphy and others advocate the placing of the stoma as near the pylorus as possible, but not for the reasons I have put forward. 6. I am inclined very strongly to doubt that food prefers to pass through the pylorus rather than through the lateral stoma some time after gastro-enterostomy has been done in cases where there is no actual obstruction of the pylorus. This statement, backed by the excellent authority of Cannon's name, has received wide acceptance but requires further corroboration. The occurrences traced in Fig. 9, for example, are entirely against this idea.

I wish here to record my gratitude to Dr. Levack, physician in charge of the electrical and x ray department of the Aberdeen Royal Infirmary, for the very willing and valuable help which he has given.

Aberdeen.

[2] THE LANCET, Feb. 22nd, 1908, p. 549.

MEDICAL INSPECTION OF SCHOOL CHILDREN.—The Swansea education committee has provided for several years past for the medical inspection of the children attending the public elementary schools in the borough. The inspections have been made by two practitioners in the town—Mr. E. Rice Morgan and Dr. Rhys Davies—and excellent results have followed. The committee has now decided that these two gentlemen shall continue the work of inspection with additional help if such is necessary to insure that all the scholars shall be examined before the end of the year. For the clerical work entailed a clerk at a salary of £80 per annum is to be engaged and the head teachers have been instructed to set apart suitable rooms in the schools for inspection purposes. Every school is to be provided with a weighing machine and measuring standard and with a folding screen. The final testing of eyesight and of hearing is to take place in rooms in the centre of the town.

INTERMITTENT CLAUDICATION, OR INTERMITTENT LIMPING, AND OBLITERATIVE ARTERITIS, WITH ILLUSTRATIVE CASES.[1]

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INTERMITTENT claudication, or intermittent limping, is a somewhat rare condition which was first described by the late Professor Charcot in 1858, and which has attracted a good deal of attention, more especially abroad—in France, Germany, and America.

The group of symptoms included under the term intermittent claudication is due to temporary ischæmia of the affected parts. The essential clinical characteristics of the condition are: (1) absence of symptoms when the parts are at rest; (2) the development of symptoms (painful limping, &c.) after exertion; (3) the disappearance of the symptoms after rest; and, in most cases, (4) absence of pulsation in the pedal arteries. In typical cases the patient feels quite well until he puts the muscles of the affected part into prolonged action. In some cases, more especially in the advanced stages of the disease, weakness and, it may be, muscular atrophy, paræsthesiæ, and vaso-motor alterations are persistently present—i.e., are present independently of exertion. In the advanced stage of the disease dry gangrene may be developed and severe continuous pain in the affected part may be present. After walking a longer or a shorter distance, which varies in different cases, motor and sensory symptoms and vaso-motor alterations are developed. The more important of these symptoms are weakness, stiffness, heaviness, coldness, numbness, a prickling feeling, pain, cramps, and rigidity in the affected limb or limbs. In consequence of the weakness, stiffness, pain, and cramp the patient limps. The affected parts usually present marked evidence of derangement of the circulation. The foot may become red and swollen or the toes may become white and dead. During the paroxysm the affected limb may be colder to the touch than its fellow on the opposite side. If the patient rests the symptoms gradually pass off and the limb after a time becomes normal. The condition is the same as stringhalt in horses.

The development of the symptoms is believed to be due to defective blood-supply to the affected parts, and, in most cases, no pulsation can be felt in the arteries of the affected foot. This absence of pulsation in the affected limb may be due to anything which obstructs the vascular channel. In most cases the obstruction is due to obliterative arteritis which usually affects the small vessels and is then often symmetrical; in some cases the larger vessels are affected; in some cases the nerves are involved from affection of the vasa nervorum. The clinical picture in cases of this kind may be that of peripheral neuritis.

In most cases of intermittent claudication three factors seem to take part in the production of the ischæmia which is the fundamental cause of the condition—viz.: (1) vascular obstruction, (2) vaso-motor spasm, and (3) the increased demand upon the circulation of the part which muscular activity entails.

Intermittent claudication and the obliterative arteritis with which it is usually associated are more common in the male than in the female and seem to affect the Jewish much more than the other races of mankind. The condition may go on for many years. The ultimate effect of the arterial obstruction which, in most cases at all events, is the pathological basis of the condition is the production of dry gangrene.

The objects of treatment in cases of intermittent claudication are the following:—

1. *To remove the arterial condition on which the defective blood-supply depends.*—In syphilitic cases the prognosis is consequently much more hopeful than in non-syphilitic cases. In obliterative arteritis which is not syphilitic and in atheromatous cases very little can, so far as we at present know, be done to cure the disease; possibly fibrolysin may prove to be of some benefit.

2. *To keep the patient at rest and so prevent the temporary ischæmia which is the immediate cause of the symptoms.* In walking the patient should never exceed his time limit; if any symptoms suggestive of a paroxysm (weakness, pain, &c.) develop he should at once stop and rest.

3. *To prevent vaso-motor spasm.*—The same remedies which are employed in cases of Raynaud's disease, such as the constant electric current, warm but not hot baths, shampooing, Swedish exercises, iodide of potassium, arsenic, nitro-glycerine, &c., should be tried. Exposure to cold and all causes likely to reflexly excite vaso-motor action (contraction of the arteries) should be carefully avoided; the patient should, therefore, if possible, live in a warm, equable climate.

4. *To relieve symptoms.*—In the later stages of the case—i.e., when gangrene develops—the pain is usually very severe and requires large doses of morphia for its relief.

If gangrene develops the affected part should be covered with antiseptic wool; morphia must be given for the relief of the pain and amputation performed as soon as the surgeon thinks it necessary to operate. Contrary to what one might *a priori* expect, surgical interference does not seem to be contra-indicated, even when the main vessel of the limb (femoral) is completely obstructed.

The following are brief notes of cases which are illustrative of the conditions under consideration:—

CASE 1. *Intermittent claudication; gangrene of the right foot; obliterative arteritis of the arteries of the right leg; amputation, &c.*—The patient, a male, aged 46 years, was admitted to the Edinburgh Royal Infirmary on Feb. 14th, 1907, suffering from pain in the right foot and leg and gangrene of the right big toe. 18 months previously there had been a development of intermittent claudication, with pain in the right leg and symptoms indicative of disturbance of circulation in the right leg; symptoms suggestive of Raynaud's disease (local syncope and local asphyxia) in the middle and ring fingers of the right hand were also present.

On admission there was absence of pulsation in the arteries of the right leg. Extension of the gangrene took place and amputation of the leg below the knee was performed by Mr. C. W. Cathcart on May 31st. The operation was bloodless, though no compression of the arteries was employed. Rapid recovery followed, the wound healing by first intention. There was complete subsidence of the pain after the operation. The microscopical examination of the arteries in the affected (amputated) limb showed obliterative arteritis.

The patient was readmitted to the infirmary on April 23rd, 1908, with similar symptoms in the left leg. There was absence of pulsation in the anterior pedal and posterior tibial arteries of the left foot and in the left popliteal artery, with very feeble pulsation in the left femoral artery, and Raynaud's symptoms (local syncope and local asphyxia) were now present in the left as well as in the right hand.

This case is of great interest because intermittent claudication, gangrene of the foot, and obliterative arteritis in the lower extremities were associated with symptoms of Raynaud's disease (local syncope and local asphyxia) in the upper extremities.

CASE 2. *Obliterative arteritis of the femoral and other arteries of both legs; gangrene of the right foot; amputation; healing by first intention.*—The patient, a male, aged 36 years, a Jew, was admitted to the Edinburgh Royal Infirmary on April 14th, 1902, suffering from pain in the right foot and gangrene of the right big toe. Extension of the gangrene occurred and amputation of the leg through the knee was performed by Mr. Cathcart on May 9th. The operation was bloodless, though no compression of the arteries was employed, and the wound healed by first intention. There was complete absence of the pain after the operation. The arteries of the affected (amputated) limb were entirely obstructed by obliterative arteritis.

In some cases of intermittent claudication there is no evidence of vascular obstruction; in these cases the essential cause of the ischæmia seems to be vascular spasm. The following is a case in point:—

CASE 3. *Typical intermittent claudication affecting both legs in a very muscular man; no obvious defects of circulation.*—The patient, a male, aged 33 years, was seen on April 9th

[1] An abstract of a paper read before the Medico-Chirurgical Society of Edinburgh on July 1st, 1908.

last and again on July 1st. During the preceding winter he had suffered from intermittent claudication; he was a medical man and he gave a very characteristic description of the attacks. Exertion did not always bring on the attacks. When first seen there was a doubt as to the condition of the pulsation in the lower extremities. I thought it was defective, but Mr. Cathcart could not satisfy himself that there was any abnormality. On July 1st pulsation in the arteries of both limbs was quite good.

This case seems to show that typical intermittent claudication may be the result of vascular spasm and muscular effort; for in this case there was no evidence of any permanent and organic arterial obstruction or disease.

Absence of pulsation in the arteries of a limb does not necessarily give rise to intermittent claudication. The three following cases illustrate this:—

CASE 4. *Tabes with absence of pulsation in both femoral arteries, probably due to syphilitic endarteritis obliterans.*—The patient was seen in January, 1902. The tabetic symptoms had developed in January, 1901, and were highly characteristic. Six years before the tabetic symptoms developed (in 1895) the patient complained of weakness in the legs. A year later he consulted Mr. Jonathan Hutchinson who found that there was no pulsation in the femoral arteries. When seen in 1902 the same condition—complete absence of pulsation in both femorals and the other arteries of the lower extremities—was present.

CASE 5. *Thrombosis of the lower end of the aorta and great iliac vessels; no symptoms of intermittent claudication; cardiac aneurysm.*—The patient was a gouty man, aged 49 years, who led an active life. For nine months before his death he had suffered from attacks of diarrhœa and recurring abdominal pain, sometimes very severe, about the umbilicus. Up to the time of his final illness he had been riding and hunting daily and had no symptoms suggestive of intermittent claudication. Shortly before his death he complained of severe abdominal pain; nothing could be detected in the abdomen to account for it. 36 hours later he died suddenly.

A post-mortem examination revealed—(1) a cardiac aneurysm; (2) slight atheroma of the aortic arch; (3) no affection of the aortic or other cardiac valves; and (4) narrowing of the lower part of the abdominal aorta, and complete obstruction of the lower part of the abdominal aorta, iliac and femoral arteries, with firm, organised clot.

CASE 6.—*Gangrene of the second toe of the right foot and bluness of the toes of the left foot; complete absence of pulsation in the arteries of both legs; no intermittent claudication.*—The patient, a male, aged 66 years, a pitman by occupation, was admitted to the Edinburgh Royal Infirmary on June 16th, 1908, complaining of pain and swelling of the right foot and a small ulcer on the dorsum of the right foot. Seven weeks before admission to hospital he had begun to complain of pain in the left foot and a blister under the toes. A few days later the right foot had become affected. Up to the day before his admission to hospital he had continued regularly at work.

On admission to hospital the second toe of the right foot was blanched, the foot was red and swollen, a small ulcer of about the size of a pea was present on the dorsum; no pulsation could be felt in either femoral arteries below Poupart's ligament or in any of the arteries of either leg. The affected toe gradually became blue and at the present time (July 1st, 1908) is gangrenous. The toes of the left foot also look blue. It seemed probable that gangrene in both feet would develop and that amputation of both legs would ultimately be required.

The absence of intermittent claudication in these cases seems to show that an element of spasm in addition to arterial obstruction and muscular effort is necessary for the production of the symptoms comprised under the term intermittent claudication.

The rapidity with which the arterial obstruction is produced is doubtless also an important point as regards the production of symptoms.

The following is a remarkable case in which the left common carotid artery was completely, and the right common carotid artery was almost completely, and the right and left subclavian arteries were markedly, obstructed by syphilitic endarteritis. In this case, notwithstanding the very defective blood-supply to the brain which manifestly had been present, there were no head symptoms, except sleeplessness, until 12 hours before death, when the patient became delirious.

CASE 7. *Syphilitic disease of the aorta, the pulmonary artery, and the great vessels arising from the aortic arch.*—The patient was a married man, aged 36 years, who was admitted to the Edinburgh Royal Infirmary on Oct. 12th, 1907, complaining of shortness of breath, pain in the upper part of the chest and the root of the neck on the left side, and indigestion. The patient walked to the infirmary.

On admission he was seen and examined by me. He looked very pale and ill and had free aortic regurgitation. He made no complaint of headache or giddiness; mentally he seemed quite bright. He died four days after admission to hospital. During his stay in hospital he complained of pain in the chest and the lower part of the neck, on the left side especially, and he was sleepless, and for the last 12 hours delirious. The cause of death seemed to be the cardiac lesion.

Edinburgh.

A CASE OF SUCCESSFUL REMOVAL OF A STONE WEIGHING TWO POUNDS.

BY OWEN RICHARDS, M.A., M.D., M.CH. OXON., F.R.C.S. ENG.,

SURGEON TO KASR-EL-AINY HOSPITAL, CAIRO, AND PROFESSOR OF CLINICAL SURGERY IN THE EGYPTIAN GOVERNMENT MEDICAL SCHOOL.

THIS case is reported because, so far as I can ascertain, the stone is the second largest that has ever been successfully removed, and because an account of the method employed may perhaps be of use to some surgeon who meets with a hard stone too big for removal by any of the usual ways.

The patient was a fellah about 40 years old, weakly and anæmic, but fairly intelligent. He told me that for the last 12 years he had had discomfort, which had become much worse in the last six months. On admission he was passing urine hourly; it was dirty, but contained no bilharzia eggs then or later. The stone filled the bladder and could be easily felt above the pubes. With x rays it gave a dense rounded shadow.

An operation was performed on Jan. 21st, 1908, under chloroform. An attempt was first made to introduce some fluid into the bladder, but very little was retained. Milton's large lithotrite (with a five-inch gape) was introduced and fully opened; the male blade got a good purchase on the neck of the stone, but the female blade merely scraped along its surface. It was clear that the stone was too large and hard for lithotrity. An incision was therefore made in the perineum, through which Milton's crushing forceps were introduced and opened, but these likewise failed to get a grip. I then cut away the lower part of the stone with an osteotome and mallet through the perineal incision, while Dr. Aly Bey Ibrahim, who was helping me, made downward pressure through the abdominal wall. The stone was hard and had to be chiselled away in blocks small enough to pass through the opening. As this soon ceased to be either easy or safe, a vertical incision was made above the pubes, the peritoneum stripped upwards as far as it would easily go, and the bladder incised vertically. The outer layer of the stone where it presented was chipped away in blocks, and the softer inner mass was cut out in the same way, till the stone become more or less hollowed. It was then possible to introduce one blade of the forceps into the cavity, and the other blade between the shell and the bladder wall, and thus to break away some of the side of the stone. After a time the stone as a whole collapsed, and then it was easy to bring pieces of it underneath the wound and crack them with osteotome and forceps. After the whole had been removed the bladder was washed, a big tube sewn in the perineal opening, and the suprapubic wound left without any attempt at closure. The operation lasted an hour and twenty minutes. For the next two days the patient was very weak, but after repeated infusion and stimulation he rallied, and was on full diet in less than a week. The upper wound was very dirty, but the perineal drainage kept it dry, and after five days the edges were drawn closer together by stitches inserted under somniform anæsthesia. After ten days the perineal tube was removed, and a fortnight later the suprapubic wound was healed and the patient passed half his urine by the penis. A month after operation there were several rises of temperature and more urine began to come through

the perineal wound. A thin splinter of stone was found imbedded in the tissues here and was removed.

Six weeks after the operation the perineal fistula was excised, its walls were sewn together, and the bladder was drained by catheter for three days. Two months after the operation the patient had partial control and passed two fairly vigorous streams from his urethra and the fistula respectively. The urine was cloudy, faintly acid, and contained a little albumin. A week later he insisted on going home. He had had news that his family, who live in a distant village, believed him to be dead; and he wished to correct this impression personally.

On May 11th, three and three-quarter months after the operation, the patient was fetched from his home for inspection. The perineal fistula was healed. There was a little bulging of the suprapubic scar, which he said was not increasing in size. His only disability was that when he walked about some urine dripped from his penis, and he had contrived to sling a little tin under it to keep him dry. When he lay down he could hold his urine and pass it voluntarily. The urine was cloudy and acid. The bladder was contracted and free from stone. He seemed in excellent health and spirits and had gained 12 pounds in weight.

The fragments of stone collected weighed 31·4 ounces damp and 30·7 ounces dry. On piecing them together it was clear that a good many had been lost. I think the entire stone must have weighed at least 32 ounces. By fitting together the blocks of the outer layer it was possible to reconstruct the shell which has been filled with plaster and presented to the Museum of the Royal College of Surgeons of England. It measures 4½ × 3¾ × 2¾ inches and shows three shallow transverse grooves due to bands on the bladder wall, as is usual in very large stones.[1] The outer layer is about half an inch thick, smooth, and white like alabaster; it is composed of calcium phosphate. The inside of the stone is brown and composed of urates.

Mr. H. Littlewood in THE LANCET of May 11th, 1907, p. 1315, gave a list of the largest stones which had been successfully removed up to that date. The largest was removed in this hospital by Mr. H. M. N. Milton in 1893. It weighed 34½ ounces and was extracted whole by abdominal section. The bladder did not regain any power of expulsion and was drained by fistula. The patient recovered sufficiently to walk about out of doors, but he died after two and a half months from kidney disease. The second largest given is a case of Sir Thomas Smith; the stone weighed 24½ ounces and was removed entire by a suprapubic incision. Recovery was complete.

As regards the method of operation lithotrity was useless. I tried the lithotrite on the reconstructed stone and it failed to grip it; moreover, the stone seemed much too hard to be cracked in this way. But Mr. Milton has crushed a stone weighing 452 grammes,[2] and there is no *a priori* reason why even bigger ones should not be crushed. At any rate my attempts resulted in no harm beyond the waste of time.

When lithrotrity and perineal crushing failed the choice lay between an abdominal section and the use of a chisel. A discussion on the merits of abdominal section will be found in THE LANCET of Dec. 1st, 1900. Mr. Milton removed his record stone in this way, and an account of his brilliant operation was published in THE LANCET of Sept. 16th, 1893, p. 687. But in the hands of less experienced and less skilful surgeons I think that some method which does not involve the simultaneous opening of a septic bladder and the peritoneum will be found to carry with it less risk to the patient. Moreover, the very extensive crucial incisions necessary for extraction may very well interfere with the recovery of the power of the bladder.

The dangers of breaking up a stone with the chisel are not, I think, very great, and are certainly less the bigger the stone. With large stones their inertia and extent of surface act as safeguards, while a stone can be cracked by sharp light taps just as readily as by heavy blows. In some seaside resorts where the geological formation favours this kind of sideshow there are performers who demonstrate these principles by cracking rocks on one another's chests with a sledge-hammer.

Mr. Walter Rivington[3] broke up an encysted stone weighing 23 ounces with a hammer and chisel, and Mr. Hurry Fenwick, who assisted at that operation, has since employed the same method for smaller stones, which must require far greater skill and nicety.[4] A thin sharp osteotome is better than a chisel and easier to manage.

A perineal opening, besides being a great help in extraction, is essential for the after-treatment.[5] The drainage is better, and instead of the damaged tissues above the pubes being kept in a bath of septic urine they are dry from the start. I recently removed a stone weighing 370 grains (greatest circumference four and a half inches) from a child, aged four years, by a suprapubic incision. The child was very ill at the time. The peritoneum was not opened at the operation, but four days later a round patch of the size of a sixpence sloughed away and the child died from peritonitis. If the wound had been kept dry by a perineal drain I do not think the patch would have sloughed or that the child would necessarily have died if it had. These considerations do not apply to the ordinary suprapubic lithotomy, but become of importance when the stone is big, the urine foul, and the tissues of poor resisting power.

The ultimate results of operations for very large stones must always depend far less on the method or the surgeon than on the state of the patient's kidneys. This is not easy to estimate in such cases, nor is it practically important to attempt it, for the condition will not improve while the stone remains, and every patient who is not actually dying ought to be operated on. Spinal anæsthesia may perhaps diminish the risk; my limited experience of it has been encouraging. But as regards the margin which is left to the surgeon for good or evil in such cases, I submit that a piecemeal extraction with osteotome and mallet above the pubes, with free perineal drainage, offers a better chance than any other method.

Cairo.

[1] Herbert Milton: THE LANCET, April 25th, 1896, p. 1131.
[2] F. Milton: THE LANCET, Oct. 1st, 1904, p. 949.
[3] Transactions of the Royal Medical and Chirurgical Society, vol. lxix., p. 360.
[4] Clinical Cystoscopy, p. 233, seq.
[5] Rivington: Loc. cit.

THE DIAGNOSIS OF DISEASES OF THE STOMACH AND INTESTINES BY THE X RAYS.

BY C. J. MORTON, M.D. EDIN.,
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IMPROVED methods of examination have of late considerably increased the usefulness of x rays in the diagnosis of affections of the intestinal tract. This improvement is chiefly due to the use of large doses of bismuth as employed by Rieder, Holtzknecht, and others combined with the more recent method of introducing air into the stomach and large intestine. The injection of air markedly increases the translucency of the abdomen, so that abnormal shadows such as those caused by tumours, concretions of the appendix, &c., can be recognised and in many cases it is possible to obtain by means of an x ray examination definite evidence of the cause of many of the hitherto obscure abdominal conditions.

When bismuth suspended in fluid is swallowed the progress of its opaque shadow as it passes down the œsophagus is readily seen on the fluorescent screen, and any obstruction due to stricture, pouches, foreign bodies, or tumours as readily detected. On reaching the stomach the bismuth passes at once to the most dependent point, and if the stomach is empty gradually spreads towards the pylorus and upwards to the cardiac end. If food is already present in the pyloric portion the bismuth is retained at the cardiac end until the pyloric becomes empty.

Dilatation and gastroptosis are recognised by changes in the size, shape, and position. Fig. 1 is a tracing of one of the common varieties of normal stomach. Fig. 2 shows a case of dilatation and gastroptosis admitted to Guy's Hospital under the care of Mr. C. J. Symonds. On opening the abdomen an old duodenal ulcer with contraction was found, and this was excised, together with part of the stomach. In mapping out the stomach it is necessary that the patient be examined in the upright position, as a greatly dilated stomach may appear of normal size when it is examined with the patient lying down. Frequently definite symptoms of dilatation accompanied by many of the recognised physical signs have occurred in cases in which

x ray examination and subsequent exploratory operation have shown that the stomach was normal. In many of the cases of ptosis of the stomach or colon voluntary contraction of the abdominal muscles will be found sufficient to raise the viscera to the normal position. A rise of three or four inches is not uncommon and indicates a trial of treatment by massage and regulated exercises. The results of this treatment or of the support obtained from an abdominal belt are ascertained by a screen examination. In the same way the after results of operation can be ascertained. In several cases where a gastro-enterostomy had

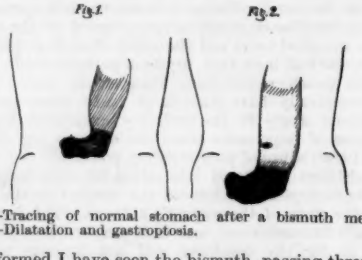

FIG. 1.—Tracing of normal stomach after a bismuth meal.
FIG. 2.—Dilatation and gastroptosis.

been performed I have seen the bismuth passing through the artificial opening, and in one of these the bismuth reached the cæcum in one and a half hours instead of in the normal four to five hours, showing that the new opening was patent and the food passing by the short circuit.

Hour-glass contraction is detected by the marked alteration in shape, as is shown in Fig 3. In this case the sharp indentation suggested the possibility of a tumour pressing on the greater curvature of the stomach, but on injecting air into the colon no abnormal shadow was seen. Mr. F. J. Steward verified the diagnosis of hour-glass stomach and performed a gastro-jejunostomy. A normal appearance greatly resembling hour-glass contraction is occasionally observed, especially when the bismuth meal has not sufficiently distended the organ. Fig. 4 shows a well-marked example of this.

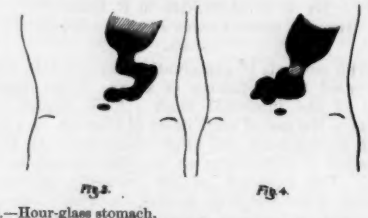

FIG. 3.—Hour-glass stomach.
FIG. 4.—Normal separation of cardiac and pyloric portions.

A diagnosis of hour-glass contraction was made from the x ray appearance, but Mr. R. P. Rowlands found the stomach to be normal and the symptoms due to duodenal contraction. While performing the operation of gastro-jejunostomy he observed the stomach to contract and again relax, giving exactly the appearances seen on the fluorescent screen. I have recently had several cases showing in a less marked degree the same normal separation of the cardiac and pyloric portions.

In gastric ulcer without contraction I have not found that the rays are of service in diagnosis. Cases have been described in which the bismuth could be seen clinging to the roughened surface of the ulcer but I have not met with an instance of this. Possibly air injection into the stomach after the bismuth has passed the pylorus will prove of use in these cases.

Tumours in the region of the stomach can sometimes be detected by the use of air injections. I have employed the method in 10 cases of suspected abdominal tumour. Definite abnormal shadows were visible in three cases, in two of which tumours corresponding to the x ray appearance were found on operation. The third case was discharged from hospital without operation. In seven cases no tumour was visible; three were discharged without operation and in the others the symptoms were found to be due to hour-glass contraction, duodenal stenosis, appendicitis without a concretion, and carcinoma of the pylorus. In the last case the carcinoma affected a large part of the stomach. A bismuth meal was given and air was injected into the colon. No shadow of the tumour was seen, but part of the bismuth was retained in the stomach 24 hours later, showing that there was some obstruction about the pylorus. Probably an injection of air into the stomach would have shown the tumour in this case.

Fig 5, from a tracing on the fluorescent screen, shows the appearances seen in a case of carcinoma of the pylorus after outlining the stomach with bismuth and distending the colon with air. The dense shadow of the vertical stomach was displaced to the left and a large faintly outlined shadow could be seen lying behind the umbilicus. At the operation this was found by Mr. L. A. Dunn to be due to a carcinoma of the pylorus involving a great part of the greater curvature of the stomach and a portion of the transverse colon. A similar appearance is shown in Fig. 6. The shadow of a swelling

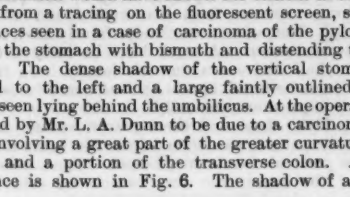

FIG. 5.—Carcinoma of pylorus.
FIG. 6.—Thickening round pyloric ulcer. Appearances shown after a bismuth meal and air injection of colon.

was seen surrounding the pylorus and this was found by Mr. Rowlands to correspond to a thickening round a large anterior pyloric ulcer which was adherent to the abdominal wall. In both cases gastro-jejunostomy was performed.

In stenosis of the pylorus dilatation of the pyloric portion with delay in the passage of the bismuth meal and occasionally an increase in peristalsis are met with. It is at present doubtful how much reliance can be placed on any of these symptoms. In duodenal stenosis I have frequently found that all were absent.

The bismuth meal employed in these examinations consists of from one to two ounces of carbonate of bismuth suspended in a pint of bread-and-milk or mixed with ordinary food. The subnitrate salt is reported to give rise to symptoms of nitrite poisoning in some cases. The carbonate, however, is quite safe and I have given it in doses of from two to three ounces in over 100 cases without ill-effect and without producing constipation. Much more accurate information is obtained from the bismuth meal than from the older methods of passing opaque bougies or giving small doses of bismuth in water or capsules.

The best method of introducing air is by using an ordinary Higginson's syringe. For the stomach the nozzle of the syringe is attached to a stomach tube previously introduced. No uncomfortable symptoms need be caused as the amount of air injected is under control and the effects can be watched on the screen.

On leaving the stomach the bismuth becomes so diffused in the small intestine that little information can be obtained. If, however, there is obstruction at any part the bismuth can be seen to collect above the constricted point. The first part of the meal usually reaches the cæcum in a healthy person in about four and a half hours, but it is frequently delayed until six hours or more. The size and position of the cæcum are readily ascertained by filling it with bismuth either from a meal or by a bismuth enema. Occasionally it is found low in the pelvis even in apparently healthy individuals, but in these it is always freely moveable on respiration. Its size, degree of fixation, and the length of time the bismuth is retained are the chief points of importance in diagnosis.

Cases have been recorded in which tumours in the pelvis and concretions in the vermiform appendix have been demonstrated by the rays after an air injection. Professor Goldmann[1] of Freiburg recently described his method of air injection at the Royal Society of Medicine and showed skiagrams of some cases of tumour and abscess of the abdomen and of concretions in the appendix. By injecting

[1] Goldmann: Proceedings of the Royal Society of Medicine, vol. i., No. 1.

air per rectum the whole length of the large bowel up to the ileo-cæcal valve becomes translucent to the rays, and the effect of this, especially on the pelvis, is very pronounced. If concretions in the appendix can be demonstrated with certainty the method will be of great value in deciding the question of operation during the quiescent period. I have found that fairly translucent objects such as fæces in the colon are visible and therefore the comparatively opaque concretions should be easily demonstrated. In the few cases I have examined with air injection no opacity was shown by the rays and no concretion was found on subsequent operation.

Acute obstruction of the large bowel is best detected and localised by a bismuth enema. In the more chronic forms with incomplete obstruction from growths and stricture, and in the various forms of constipation a bismuth meal gives the more accurate information. The meal should be given about 28 hours before the x ray examination. In this time most of the bismuth will have passed in a normal person to the descending colon and the cæcum and transverse colon have become comparatively empty. The normal appearance at this time is shown in Fig. 7. If the condition of the stomach also requires investigation a second bismuth meal is now given and this organ examined. If necessary subsequent daily examinations can be made to ascertain the nature of the delay and the length of time the bismuth is retained at any point.

Obstruction of the large bowel sometimes causes greatly increased peristalsis and the bismuth is hurried along until it reaches the constricted point. I have observed this to occur in some cases of impacted fæces and in two cases of carcinoma of the sigmoid flexure. In one of the latter admitted to Guy's Hospital with a history of six months' constipation the bismuth reached the splenic flexure in six hours (Fig. 8) and in 28 filled the whole of the large bowel to

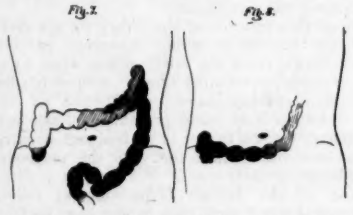

FIG. 7.—Normal appearance of colon 28 hours after a bismuth meal.
FIG. 8.—Obstruction from carcinoma of sigmoid flexure. Appearances at six hours.

the lowest part of the sigmoid flexure. Recurrent spasms with rapid waves of peristalsis, accompanied occasionally by great contraction of the lumen of the bowel throughout its whole length, were repeatedly observed. Waves of peristalsis followed by retro-peristalsis could be seen driving the bismuth backwards and forwards and producing at the sigmoid flexure a regular churning movement with rapid changes in its shape. During the spasms the contracted bowel could be felt through the abdominal wall. Belladonna was given to relieve the spasm and pain and the patient was examined two days later. The whole of the large intestine was then lying motionless and greatly distended with fæces and gas.

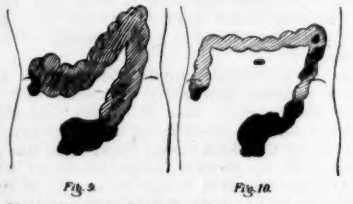

FIG. 9.—Obstruction from carcinoma of sigmoid flexure. Appearances at four days.
FIG. 10.—Case of partial occlusion of sigmoid flexure from carcinoma, 13 hours after bismuth meal.

None of the bismuth had reached the rectum. The appearance on the fourth day is shown in Fig. 9. The characteristic x ray appearances showed that there was an obstruction at the lower part of the sigmoid flexure. Mr. C. H. Golding-Bird operated and found a small carcinoma encircling and occluding the sigmoid flexure immediately above the rectum.

In another case admitted under the care of Mr. W. Arbuthnot Lane the symptoms were less pronounced. The patient, a man, aged 68 years, who was "always constipated," had suffered from a severe attack four months previously, the constipation then lasting a week. For 16 days before the x ray examination the bowels had not acted, although croton oil and numerous enemata had been given. A bismuth meal was found to pass through the large intestine very quickly, and in 18 hours most of it was found retained in the iliac colon and sigmoid flexure (Fig. 10). In spite of fairly active peristalsis the rectum remained clear and the obstruction was evidently due to a constriction at the lower part of the sigmoid flexure. Mr. Lane found a small carcinoma encircling the bowel at this point.

Retention of the bismuth at or about the splenic flexure is frequently seen, and in some cases this is apparently due to kinking of the colon at this point. In a case of severe chronic constipation in which Mr. Lane subsequently performed colectomy a marked narrowing of the last part of the transverse colon was observed. In 48 hours the bismuth had not reached the splenic flexure but was retained in a greatly distended cæcum and ascending colon (Fig. 11). On re-examination four days after the meal was taken some of the bismuth had passed to the sigmoid flexure but a large part was still retained in the distended cæcum. Fig. 12, from a

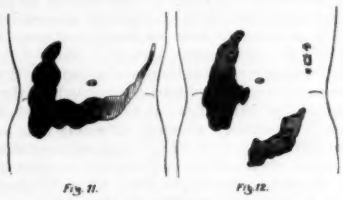

FIG. 11.—Case of chronic constipation. Appearances at 48 hours.
FIG. 12.—Case of chronic constipation. Appearances at four days.

skiagram taken four days after the bismuth meal, shows the enlarged cæcum and ascending colon distended by the bismuth meal and the comparatively small portion that had passed into the iliac colon and sigmoid flexure.

The normal times and x ray appearances at the various stages of the passage of a bismuth meal were ascertained in an investigation undertaken with Dr. A. F. Hertz[2] on "the passage of food along the human alimentary canal." Subsequently a number of cases of constipation were examined and the results, with details of the cases, given by Dr. Hertz[3] in a paper on Chronic Constipation read at the Royal Society of Medicine. Impaction of fæces in the sigmoid flexure and rectum and loss of contractile power of the large bowel were found to be frequent causes.

In constipation the method is of value in showing the part of the bowel in which the delay occurs, and in some cases the cause of the condition, and in indicating the proper lines of treatment. The immediate effects of the various aperients and enemata and the after-results of the different methods of treatment can also be ascertained by means of the bismuth meal and x ray examination.

Welbeck-street, W.

[2] Hertz: Guy's Hospital Reports, vol. lxi., and Brit. Med. Jour., Jan. 18th and 25th, 1908.
[3] Proceedings of the Royal Society of Medicine, February, 1908.

AN ENGLISH SURGEON MURDERED IN PAHANG.—The *Times* Singapore correspondent, in a telegram dated July 21st, says: "A gang of 15 Chinese attacked Mr. Barrack, a district surgeon, and a contractor near the Gambang rest-house in the Kwantan district of the Pahang State on the 15th of the month. Mr. Barrack was killed. The murderers escaped, taking with them $8000 (£933)." Mr. J. W. Barrack, M.B., Ch.B. Edin., was late house surgeon to the General Hospital, Singapore, and previously served in a similar capacity to the Seamen's Hospital at the Royal Victoria and Albert Docks.

ASCITES AND TUMOURS OF THE OVARY.*

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AMONG the ancients [44] ascites was a well-recognised pathological condition, treated precisely as at the present day, with results that owed their failure not to any error in procedure but to the want of the knowledge of the prevention of infection.

The term hydroperitoneum was introduced by Matthews Duncan [23] for those cases where fluid is present but "no disease discovered, beyond the condition of the peritoneum, to which the collection of fluid can be referred, as for example hydrothorax and hydrocephalus." At the present day the necessarily artificial and arbitrary distinction between ascites and hydroperitoneum has been laid aside and the latter term has generally fallen into disuse.

The physiological characters of the peritoneum are those of a serous membrane partaking in a very considerable fluid interchange; disturbance of the normal equilibrium leads to the production of ascites.[42] "The cells of the endothelial wall," says Halliburton,[30] "are alive and are capable of a selective action, which may mask or counteract or assist purely physical processes."

The ascites associated with hepatic cirrhosis is considered by certain writers [42 58 59] to be an instance of an increase in transudation, combined with diminished absorptive powers, the result of a more or less mechanical obstruction to the venous return in the portal system. Stengel,[54] however, states that "chronic peritonitis plays a part in the etiology of many cases of ascites ordinarily regarded as the result of obstruction of the circulation alone, as in cases of cirrhosis of the liver." Hawkins,[31] although affirming that in cirrhosis of the liver the ascites is in 80 per cent. of the cases a direct result of portal obstruction, still retains an open mind with regard to the remaining 20 per cent. when he observes that "the relation between hepatitis, perihepatitis, and hepatic cirrhosis in the causation of ascites is not yet fully understood." In a recent article Kitchen and Thomson [36] lay further stress on the toxic factor in the etiology of this disease, while it is stated in Jacobson and Rowlands's "Operations of Surgery" [35] that "it is more than probable that any good which may follow the operations which have been designed for establishing vascular anastomosis is really due more to the drainage carried out at the same time, and to the interference with the secretory function of the hepatic and splenic peritoneum."

For the most satisfactory account of the pathology of ascites resulting from nephritis we are indebted to von Noorden [60] who, in a masterly survey of the situation, declares that primarily "disturbances in water balance in nephritis are purely mechanical in origin—i.e., a direct relationship exists between the intake of water and the capacity for its excretion." At the same time he realises that "the presence of certain poisons in the blood favours the development of anasarca, making the walls of the capillaries more pervious, stimulating them to an 'active secretion.'" He agrees with Widal that a further etiological factor is the imperviousness of the kidney to chloride and its retention in the fluids of the body, but holds that hydræmia cannot be considered a factor, since "severe hydræmia never appears before the œdema, and hydræmia may be present without œdema."

Thus modern thought assigns in nephritis, as in cirrhosis of the liver, an active as well as a passive rôle to the cells of the peritoneum; more work yet remains to be done in the elucidation of the toxic agents by which the peritoneal cells are stirred into activity.

The ascites arising from disease of the heart or lungs requires no elaborate explanation. Von Noorden [60] voices the opinion of all authorities in his statement that "the excretion of water is insufficient, and hence it accumulates in the blood and tissues, together with other urinary substances, thus causing hydræmia and dropsy of the skin and serous cavities."

Ascites coincident with peritonitis, resulting from toxic processes attending an infection of the peritoneum with micro-organisms, is in the form of an inflammatory exudation.

Hale White [29] states that "ascites as a symptom of cancer of the liver may be absent even when there is pressure on the portal vein, corroborating the experiment of the ligaturing of this vein in the dog. In many cases there is also chronic peritonitis due to malignant nodules in the peritoneum." A malignant peritoneal growth may possess an irritative or toxic property, as demonstrated under the microscope by round-celled infiltration at the growing margin, and the accompanying ascites may be as truly called a peritonitic exudation as in the case of infective peritonitis.

A French author [56] describes a "thick viscid fluid, more or less resembling gelatine, sticky and adherent to the peritoneum and pelvic organs" as being associated with abdominal colloid cancer. It is not reasonable to suppose that the presence of a colloid growth could excite the peritoneum to the exudation of a colloid material; more probable is the supposition that the growth itself is directly responsible for the colloid material, and if in the type of colloid cancer this is held to be a feasible explanation it is possible that the ascitic fluid of the usual type may in some cases be in its turn the product of the cancerous growth.

In ascites accompanying papilloma of the Fallopian tube [21] it has yet to be proved that the secretion of a non-malignant growth in this situation possesses an irritative action upon the peritoneum.

A form of ascites occurring in young girls has been described by Quincke.[49] This he states to be a "nervous form of hypersecretion." The literature seems to be confined to continental writers.[6 7] Stilling [42] has described a neuropathic form of ascites. Klebs [37] brings forward a class of ascites caused by fatty degeneration of the peritoneal epithelium. Ascites chylosus, ascites adiposus, hæmorrhagic ascites, hæmoperitoneum, choleperitoneum, ascites due to exposure, anæmia, and debility are fully described in the majority of the text-books.

In dealing with tumours of the ovary we are dealing with types of new growth of widely divergent pathology; the inferences drawn from the study of one type by no means necessarily apply to the other types. Ascites has been noted as a frequent accompaniment of fibroma of the ovary. Briggs [10] describes it as being present in 40 per cent. of his cases. Doran [22] states that it is of frequent occurrence. It is difficult to account satisfactorily for the presence of fluid in the abdomen in these cases. We find, in a discussion at a meeting of the British Gynæcological Society, that Macnaughton-Jones [39] says that in the case he had brought forward the ascites was due, not to the presence of the tumour, but to alcoholic cirrhosis of the liver.

But while concurrent disease may account for a proportion of the cases it cannot be held to account for all. Donald [19] recently considered the presence in the abdomen of a tumour of low vitality sufficient to set up a chronic peritonitis, and that this was the pathological cause of the ascites. A fibroma may be a tumour of low vitality, in that the demands of its metabolism are not great, but it does not appear to be clear why its presence should give rise to a peritonitis. At the same time we realise that fibromata of the ovary are prone to undergo necrosis on the one hand, and to suffer from torsion of the pedicle on the other. The latter condition would lead to venous and lymphatic congestion of the tumour and exudation of serum into the abdominal cavity, and, provided the torsion were not too severe, necrosis resulting would tend to further the increase in exudation, together with the establishment of a chronic peritonitis.

Necrosis—or necrobiosis—would appear to be a process, apart from accident, intimately associated with the life-history of the tumour; that it is not dependent upon restricted blood-supply is evidenced by the increased number and large size of the blood-vessels found when this process is established. It is, perhaps, more consistent with one's knowledge to say that if a benign tumour is of sufficiently slow growth its host may die before it has reached the stage of decay, while if the tumour reaches its allotted span of life whilst its host is still vigorous, then the pathological changes associated with degeneration are demonstrated. Necrosis, inviting infection by organisms either by means of the blood or more directly from the intestinal tract, would lead to a peritonitic exudation, which may account for a certain percentage of the cases. The histological characters of fibroma of the ovary negative any supposition that the tumour itself

* A paper read at a meeting of the Liverpool Medical Institution on Feb. 6th, 1908, and illustrated by lantern slides. (The superior figures refer to the bibliography at the end of the article.)

is capable of the production of ascites; examination of the capsules of attenuated ovarian tissue covering certain of these tumours did not in one instance show any germinal epithelium, the only structure to which might have been assigned the property of fluid secretion.[25]

Compared with fibromyoma of the uterus, ascites accompanying ovarian fibroma is of frequent occurrence;[22] it is remarkable, indeed, how seldom ascites is found in this common uterine disease. A point of special interest and one worth investigating, considering their marked macroscopical and microscopical similarity, is whether ascites is present or absent as a rule in cases of large pedunculated subserous fibroids of the uterus, compared with pedunculated fibromata of the ovary. During the discussion following the reading of this paper Grimsdale described a case of ascites definitely dependent upon the mechanical irritation of the peritoneum by a calcified fibroma of the ovary, since the ascites regularly disappeared following complete rest and reappeared upon exertion. The pathology of the ascites associated with fibroma of the ovary would thus appear to be dependent upon necrosis of the tumour or torsion of its pedicle, upon mechanical irritation of the peritoneum by a hard tumour, upon concurrent disease, and lastly upon some cause hitherto undiscovered.

Ascites associated with multilocular adenomata or pseudo-mucinous cysts of the ovary is peculiarly interesting from the historical standpoint. Bristowe,[13] for example, records a post-mortem examination where he found "a multilocular adenoma and fluid in the abdomen with marked peritonitis," but the appended history of the case would point to the peritonitis being probably the result of infection from a previous paracentesis. Indeed, in 1861 von Scanzoni[61] describes paracentesis as one of the recognised methods of treatment for cysts of this description; in those days oöphorectomy was attended with such disastrous results that operators felt justified in resorting to the simpler expedient of emptying the tumour from time to time. Many tumours are wont to rupture spontaneously into the abdomen, often producing no symptoms at all of an adverse character.[54 26 53] Penrose[45] describes an interesting case of this description where "a large abdominal swelling underwent a rapid diminution, attended by sudden pain, followed in half an hour by the passing of a large amount of urine, with marked diuresis for four or five days. The tumour reappeared in one month's time, but during four days before admission was observed to slowly diminish, and to eventually disappear in three days' time; during the seven days abnormal quantities of urine were passed; laparotomy revealed an ovarian cyst with straw-coloured gelatinous fluid in the abdomen." Cases have been recorded of traumatic as well as spontaneous rupture of these cysts. Storer[55] asserts that peritonitis is less liable to supervene following upon traumatic rupture as compared with spontaneous rupture. An explanation for this statement may be made on the grounds that the latter contingency may result from necrotic softening of the cyst wall,[61] thus favouring the incursion of organisms, or from a malignant condition of the cyst with results resembling those described under ascites associated with malignant disease of the peritoneum. The irritative action of the contents of this class of ovarian cyst inducing a state of chronic peritonitis has been suggested by Bristowe[11] and recently by Pozzi,[48] but after excluding infection from paracentesis, necrosis, and malignancy, there would appear to be no grounds for the suggestion. The attitude of the modern surgeon to the cystic contents is one of indifference, and this attitude, based upon clinical experience, supports the view that under normal conditions the fluid contained in pseudo-mucinous cysts is innocuous and non-irritative. Ascites, generally in scanty proportions, occasionally accompanies unruptured cysts and cysts that show old cicatrices; in some instances its presence may be induced by a necrotic state of the cyst wall or torsion of the pedicle; at least it cannot be said to be a transudate of the fluid from within the cyst, seeing that these cysts may reach very large sizes with little or no accompanying ascites. Ascites, then, with pseudo-mucinous cysts may accompany necrosis of the cyst wall and torsion of the pedicle, or may result from rupture, spontaneous or traumatic, of the cyst itself.

Lastly, we come to the type of ovarian tumours distinguished by papillomatous growth. This may be divided into three classes: (1) those in which the papillomatous projections are purely intracystic, (2) those in which the projections are both intracystic and extracystic, and (3) the tumours characterised by superficial papillæ only. The first class, with which may be associated the serous cysts of the ovary, are not known, apart from rupture, to produce ascites, and there is no suggestion in the literature that their limpid contents, when poured out into the peritoneum, following rupture of the cyst wall, possess any irritative action. Barnes[2] has stated that "when a tumour bursts with escape of its contents into the peritoneum the fluid if limpid may be taken up into the circulation and discharged rapidly by the excretory organs." For the purpose of this paper Class 3, the primary superficial papilloma, may be discussed along with Class 2, where intracystic and extracystic papillomata coexist; this latter class accounts, according to Pozzi,[48] for the great majority of the cases of ascites associated with ovarian tumours. Doran[22] states that in this class ascites is rarely, if ever, absent, and an exhaustive survey of the literature confirms this opinion. Bouilly[9] goes even further and affirms that "ascites is an invariable symptom of superficial papilloma of the ovary." The only explanation one has been able to discover regarding the pathology of this condition is that offered by a French writer, Menetrier,[40] who considers the ascites to be "fluid exuded from the peritoneum under the irritative influence of the tumour." All the other authorities draw attention to the coexistence of ascites with this class of ovarian tumour, but do not appear to have assigned its presence to any pathological factor. It has fallen to my lot elsewhere[25] to record an explanation for this condition based upon the histological examination of a primary superficial papilloma of the ovary. Briefly stated, the epithelium covering the new growth of the ovary, agreeing in all respects with the epithelium covering intracystic papillomata and partaking of the physiological characters of this epithelium, determines the cause of the ascites to be the secretory activity of the cells covering the superficial papilloma of the ovary.

Whitridge Williams[63] states that "the watery consistency of papillomatous cysts is probably due to the fact that there are but few mucigenous cells in the epithelial lining and also because a considerable portion of the fluid is a transudation from the vessels in the papillary projections." One's knowledge of this class of tumours corroborates the first portion of this statement but it is difficult to understand how he arrives at the conclusion that a considerable portion of the fluid is a transudate from the capillary vessels in the papillary projections. In an examination of the fluids he gives the specific gravity as ranging between 1005 and 1040. Wells,[62] in an investigation into the contents of cysts almost identical with papillomata of the ovary, gives the following figures:—Papillary intraligamentary cysts, specific gravity 1032 to 1036, solids 9 to 10 per cent.; serous cysts of the ovary, specific gravity 1005 to 1014, solids 1 to 4 per cent.; and parovarian cysts, specific gravity under 1010, solids 1 to 2 per cent., the ash often 80 per cent. Comparing these figures with those of blood plasma[30]—specific gravity 1026 to 1029, solids 10 per cent., of which eight parts are proteid—we see that the fluids are not merely transudates from capillary vessels but result from a selective secretory action on the part of the lining epithelium, which agrees with Halliburton's[30] definition of that structure in that "it consists essentially of a layer of secreting cells arranged around a central cavity, taking from the lymph which bathes them the necessary material and transforming it into the secretion which they pour at high pressure into the cavity." Histological evidence[25] proves that not only is the epithelium of an intracystic papilloma a secretory epithelium but so also is the epithelium covering the extracystic and superficial papilloma, and as there is no evidence that the secretion is of an irritating character, the presence of free fluid in the abdomen associated with intracystic papillomata with extracystic growth and with superficial papillomata of the ovary is to be regarded as the result of an active secretion on the part of the epithelium covering the growths. Fluid absorption, as we have seen, plays an important part in the physiology of the peritoneum; that the fluid secreted by the growth is incapable of absorption is improbable when one considers the limpid character of the secretion of cystic papillomata; more probable is the explanation that the rate of fluid secretion by the growth is in excess of the rate of absorption by the peritoneum.

Ascites, then, we have seen to be in essence an interference with the absorptive powers of the peritoneum; either the absorption is diminished or else the fluid production is

in excess of the absorption; and we have also seen that all forms of ascites are not dependent upon increased transudation from the peritoneum. In addition it has been shown that the tendency of modern investigation is to assign to the cells of the peritoneum a more active rôle in the production of ascites, while at the same time instances have been brought forward of ascitic production not dependent upon the peritoneal cells but resulting from the activity of certain epithelial cells developed in tumours both of the ovaries and of the Fallopian tubes.

Lastly, we realise that the ascites accompanying tumours of the ovary may result from certain necrotic changes undergone by the tumours, from torsion of their pedicles, or from mechanical irritation of the peritoneum by tumours of extreme hardness. At other times the fluid in the abdomen may be accounted for by concurrent disease, or may require an explanation which is so far not forthcoming, while in certain tumours the ascites is actually the product of the epithelium of these new growths, as, for example, superficial papillomata and cystomata with ruptured walls.

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THE INDIVIDUAL PLASMA.

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MANY writers have maintained, among them Nägeli and O. Hertwig, that the body cells of every organism must contain a special modification of the living substance or protoplasm peculiar to itself. This Nägeli called "Idioplasm." In this special form of protoplasm the characteristic properties of the particular organism must be contained—e.g., the protoplasm of the cat must be different from that of the dog or hare, and so forth, as is indicated by the chemical differences in the fat, bile acids, blood colouring matter of different animals, as well as by their different susceptibility to certain diseases.

In my opinion it is a logical necessity to go further and to assume that in the cells of each individual there must be a special form of protoplasm which I propose to call "individual plasma." This individual characteristic specific form of protoplasm must be already contained in the fertilised ovum cell of each organism. In it must be present all conditions necessary for the complete development of these cells into the individual organism which is ultimately to proceed from it. In other words, there must be present in this individual plasma the predisposing conditions (*Anlagen*) which determine the development of all the inherited characteristics which are to be subsequently observed in the particular individual in question. It follows then that every child of every pair of parents must have a different individual plasma and the individual plasma may therefore be defined as the specific protoplasm of the individual. The behaviour of different individuals towards infections, the occurrence of individual immunity towards many diseases, the specific smell—i.e., the specific exhalation—of every individual which can often be so clearly distinguished, as, for example, by dogs, all speak in favour of these views. The adult organism naturally transmits its own individual plasma to the germ cells produced by it whether ovum or sperm.

The individual plasma is evidently, like all forms of protoplasm, to be regarded as a living organised substance formed of different albumin-like chemical groups. Weismann has stated that each heritable characteristic in a species or individual—e.g., the black spots in apple-mould, the special tufts on the wings of a butterfly, and so on—must correspond with a slight modification in the properties of the ovum or sperm. Weismann supposes that every such characteristic—e.g., every hair and every scale in such a spot—is represented in the germ-cell by a more or less isolated corporate particle which he calls a "*determinant*" (Darwin's "gemmules," de Vries's "pangenes"). I do not, however, believe that these separate determinants (*Anlagen*) require such isolated material particles, but perhaps only special atom-groups, or it may be only special arrangements of atoms or atom-groups, in the molecules of the individual plasma.

According to my view a change in the position of an atom or atom-group in the molecule of the individual plasma would be sufficient to bring about such a change in development that in the fully developed organism some special mark—e.g., a white bundle of hairs in any part of the scalp—would develop, which might afterwards be inherited. The individual determinants are then, in my view, intra-molecular in the individual plasma. According to my hypothesis there must be as many different kinds of protoplasm as there are individuals upon the earth. This might seem impossible. As a matter of fact, Herbert Spencer believed that the ultimate life-units could not be composed of separate molecules, because so many different molecules could not exist, but that they must be differently constituted molecules and consequently the life-units were specifically different.

Modern chemistry shows that a molecule of albumin contains 40 asymmetrical carbon atoms—i.e., carbon atoms with which four different atoms or atom groups are combined. If this be the case then within that molecule about a billion different arrangements in space, so-called stereoisomers, are possible. To these must be added almost as many arrangements for the nitrogen atoms and unsaturated groups. Yet with all these intra-molecular changes the percentage composition—i.e., the empirical molecular formula—would remain the same. It is therefore no chemical impossibility, but on the contrary theoretically

easy, to conceive that for each living individual a peculiar specific individual form of protoplasm should exist.

It is not difficult on this theory to understand how the one or other predisposition (determinant *Anlage*) in an individual may become active, pre-valent, or dominant, if we suppose that in dependence upon the surroundings the cell juice, &c., in one case this, and in another that, specific atom-group enters into reaction. We can imagine that for generations particular atom-groups in the individual plasma may behave as perfectly stable—i.e., remain latent—and then all at once under appropriate conditions again enter into action and thus permit a throwback or reversion to appear in the individual. In the same way we may easily imagine that such atom-groups occasionally split off once and for ever and so special characteristics may be lost completely. Again, sports (*Sprungweise mutationen*) can be easily explained as due to intra-molecular changes in neighbouring atom-groups in the highly complex molecule of the individual plasma. In a similar way I conceive that there may take place in the cell quite of itself a reduction in the heritable characteristics—i.e., of the heritable predisposing conditions (*Anlagen*)—that is, a self-regulation of the heritable mass (*Erbmasse*).

Weismann has stated, as is well known, that in the so-called maturation division of the sexual cells before fertilisation—i.e., in the so-called (*Richtungskörperbildung*) reducing division of the nucleus—a reduction in the number of the heritable units must occur, so that the heritable characteristics do not run on into infinity by the union of the germ and sperm threads. This view is accepted by almost all authors. I hold, however, that such a process is *a priori* improbable. Fertilisation takes place, in my opinion, by no means according to a mere arithmetical summation of two individual plasmas (the male and the female), but is much more apparently, to some extent, a chemical reaction between two forms of plasma. By this reaction in fertilisation a new individual plasma arises, the individual plasma of the new organism (*Keim*). Each individual plasma is thus the product of a genealogical synthesis, for in the constitution of the individual plasma of the ovum the continuance of the female parent is provided for by characteristic atom-groups and similarly in the constitution of the individual plasma of the sperm the continuance of the male parent is provided for.

It is obvious also that the new individual plasma might build up anew of itself the atom-groups which the individual has inherited from distant progenitors without containing in its own body any individual chemical molecules of such progenitor. This genealogical synthesis in the copulation of the sexual cells is evidently the object of fertilisation, for in this way new kinds of individual plasma can come into being which may be useful in the struggle for existence.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

TWO CASES OF STRANGULATION OF THE TRANSVERSE COLON: ONE IN AN INGUINAL AND THE OTHER IN A FEMORAL HERNIA.

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THOUGH strangulation of the transverse colon in an inguinal or femoral hernia does not present any symptoms by which it can be distinguished, clinically, from strangulation of the colon in any other region, the fact that such contents may be found in a hernia situated at a considerable distance from the normal situation of the transverse colon may be emphasised by placing on record two cases which have occurred in my hospital practice within the last few months.

The first case was that of a well-built muscular man, 34 years of age. This patient for some years had suffered from a hernia which he could always reduce till about ten hours before he was admitted to hospital when it suddenly became larger, painful, and irreducible. Soon afterwards symptoms of strangulation appeared. When admitted the hernia presented as a smooth, tense, elongated tumour, extending from the left inguinal canal into the scrotum, the skin of which was tightly stretched. The temperature and pulse were only slightly above normal.

When the sac, which was of the congenital variety, was laid open at the operation, the contents were found to consist of practically the whole omentum with about eight inches of colon. There was no definite band producing the strangulation as the canal was wide enough to permit the little finger to be passed along its whole length with the bowel still unreduced and yet there was sufficient interference with the circulation to cause not only marked congestion of the hernial contents but also numerous small hæmorrhages into the wall of the colon. The affected piece of bowel was greatly distended with gas. There were no adhesions between the sac and its contents. After a series of ligatures had been applied the omentum was removed and attempts were then made to reduce the colon through the comparatively wide canal, but these being unsuccessful the structures surrounding the neck of the sac were fairly freely divided. A finger now passed through the wound into the abdomen could easily trace the continuation of the colon from the hernia upwards, one limb of the loop passing almost directly upwards and the other running towards the right side of the abdomen. The bowel was now replaced and the radical operation completed. Recovery was uninterrupted and the patient was dismissed at the end of a month.

The second case occurred in a woman, aged 50 years, who had been the subject of a left femoral hernia for eight months before the onset of acute symptoms. During these months the hernia had varied in size from time to time and though it could never be quite reduced it did not cause any inconvenience till on making a sudden straining effort it increased in size considerably and became irreducible. When seen by me, nine hours later, the symptoms of strangulation were well marked though the bowels had moved once slightly after strangulation had taken place. The pulse and temperature were normal.

When the sac was opened it was found to contain a loop of deeply congested colon, about four inches in length, measured over the loop. Depending from its lower margin and forming the greater part of the hernial contents was a large piece of the omentum, between which and the sac there passed several firm adhesions. To relieve the constriction, which again was not very tight, Gimbernat's ligament was incised. Through this enlarged opening the finger could trace the limbs of the loop as in the former case. The omentum was removed, the colon was returned into the abdomen, and the radical operation was performed. The patient was dismissed from the hospital three weeks later with the wound healed.

In neither of these cases was there a tight constriction at the neck of the sac and yet there was sufficient interference with the circulation to produce not only congestion in both but even hæmorrhages in one of them. Further, though the canal was comparatively wide it was only after it had been enlarged by free incision that reduction was effected.

Herniæ of the large intestine seem to be specially liable to strangulation as symptoms of this condition are frequently found in cases where the neck of the sac can scarcely be regarded as narrow.

Glasgow.

A NOTE ON SOME UNUSUAL CASES OF TRICHOPHYTIC INFECTION.

BY ARTHUR WHITFIELD, M.D. LOND., F.R.C.P. LOND.,
PHYSICIAN TO THE SKIN DEPARTMENTS OF KING'S COLLEGE AND THE GREAT NORTHERN CENTRAL HOSPITALS.

I BELIEVE the following cases of ringworm to be worthy of report on account of certain peculiar features which might easily lead to an error of diagnosis and actually did so in one case.

CASE 1.—A man who had spent a large part of his life in China was brought to me in consultation by Dr. Ernest Playfair complaining of eczema of the soles of his feet and roughening of the toe-nails. The affection was first noticed three years ago and eight years after his return from China. He had tried several remedies and had been treated by one

specialist for skin diseases who diagnosed the trouble as eczema of the toes. On examination it was found that all the toe-nails of both feet were yellowish, friable, and longitudinally split. The patient kept them extremely short on account of this friability. The skin around the nails, especially at the posterior nail fold, was slightly reddened and the surface was desquamating irregularly. There were a good deal of sodden hyperkeratosis between the toes and some fissuring in the angles of the fold. Most of the skin of the sole was apparently fairly healthy, the morbid condition being situated chiefly on the distal side of the heads of the metatarsals. The skin of the hands and the finger-nails were in a perfectly healthy consideration. There was considerable pain from the "eczema" of the toes, probably caused by septic absorption from the frequent fissuring. There was also a history of an eruption on the leg of which it was said that "it must have been herpes," though it is doubtful if the physician who made this diagnosis ever saw the actual eruption. The patient spent much time in trimming and scraping the nails, taking no precautions against the spread of infection, and yet his fingers were quite healthy, so that it did not seem likely that a local infection was present. In spite of this I thought it advisable to make a microscopic examination, and accordingly a large amount of scrapings and clippings of the diseased nails was collected and examined. After a somewhat prolonged search I found a number of specimens in which a fair abundance of trichophytic fungus was evident. I therefore advised that all the nails should be taken away under an anæsthetic and the toes dressed with an antiseptic ointment. The patient, however, would not consent to removal of the nails and I therefore advised treatment by the perchloride of mercury and alkaline potassium iodide solutions advised by Harrison, and failing this the weak iodine dressing of Sabouraud. Unfortunately, both these treatments caused so much pain that they could not be efficiently carried out, and when I last saw the patient he was not greatly improved.

The greatest interest of this case lies in the fact that in spite of frequent handling of the diseased nails without any precautions no infection of the finger-nails took place, a circumstance which undoubtedly threw off his guard the skin specialist previously consulted. The frequent attacks of pain up the legs were also diagnosed as neuritis by a nerve specialist, who said that the eruption must have been herpes, though it seems more probable that these were, as has been said, of the nature of lymphangitis. Lastly, it is probable that the true history of the infection is longer than the patient believes, as it is my experience that nail ringworm is especially common in those living in China and Japan.

CASE 2.—This case, or rather series of cases, has also recently come under my notice. A man came complaining of peeling and itching of the soles of both feet, and gave the following history. For about four months he had been worried with itching of the feet and cracks between the toes. About two months later his wife began to be similarly affected and later his daughter. Suspecting some irritant left in the stockings these were washed at home and both his wife and the maid who washed some of the stockings as a test contracted the disease slightly in the palms. The three who came to me (I did not see the maid) all showed marked sodden hyperkeratosis between the toes and indefinite scaling of the soles spreading up slightly and with an ill-defined edge on to the dorsum. The nails were all quite healthy. No vesicle formation was seen anywhere and no rings were present. Examination showed in every specimen extraordinarily abundant, short-jointed, large mycelium and the patients were accordingly treated for trichophytic infection.

This group of cases indicates the possibility of the washings being a source of infection and justifies the Anglo-Indian idea implied in the term dhobi (washerman's) itch.

CASE 3.—This patient, a young woman, was also brought to me by Dr. Playfair. The trouble consisted of an acute vesico-bullous eruption on the dorsal surface of the right fore-finger and the right hypothenar eminence. The lesions were arranged more or less in patches but there were many outlying vesicles and there was no ring formation. On the hypothenar patch the vesicles had run together to form here and there large bullæ on the surface of which were still to be seen the markings of the constituent vesicles. The condition had developed five days before during the very hot weather and was similar to the acute eczema of the hands so commonly seen during great heat. The history, however, showed that about two and a half months previously the patient had rescued a common wild mouse which was being cruelly treated by some village children, and the mouse had bitten her in the exact sites of the present eruption. Both bites had drawn blood, but they had healed in an apparently satisfactory manner in a few days and nothing further had been seen until five days ago (i.e., about nine weeks later). The roofs of some of the fresher vesicles were cut off and examined and an abundance of large, short-jointed trichophytic mycelium was found and the cause of the eruption thus elucidated.

The points of interest here are the long duration of latency of infection and the very definite history of inoculation by the mouse. Favus of the mouse has been well known for some time and it has been recently pointed out[1] that widespread epidemics of trichophyton also occur in mice.

In none of these cases were the clinical features of the eruption in the least characteristic of the disease, and I record them in the hope of again drawing attention to the immense importance of the clinico-pathological investigation in all doubtful cases.

Bentinck-street, W.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

OTOLOGICAL SECTION.

Exhibition of Cases, &c.

THE first meeting held outside London took place at Edinburgh on June 27th, in the Ear and Throat Department of the Royal Infirmary, Dr. PETER MCBRIDE, the President, being in the chair. The meeting was well attended, over 30 members being present.

Cases of Lateral Sinus Thrombosis and Intracranial Abscess were shown by the PRESIDENT, Dr. A. LOGAN TURNER, Mr. HENRY WADE, and Dr. W. PERMEWAN. They were discussed together. The chief points of the discussion were the conditions requiring ligation of the jugular vein, the importance of nystagmus, the value of bacteriology, and examination of the blood, especially with regard to leucocytosis as a means of diagnosis and guide with regard to treatment.

The next group of cases related to the Radical Mastoid Operation. Dr. LOGAN TURNER showed two cases with Preservation of the Tympanic Membrane and Ossicles. Dr. PORTER showed a case of Stenosis of the Auditory Canal which occurred twice in spite of subsequent operations and was chiefly due to the new formation of bone.

Dr. J. STODDART BARR read some notes on Partial Skin-grafting with the Aid of Local Anæsthesia as a Method of Shortening the After-treatment.

Dr. GEORGE A. GIBSON and Mr. RICHARD LAKE communicated notes of a case of Ablation of Both Vestibules for the Relief of Vertigo. The case was first shown at the Otological Society in 1905. As a result of operation coördination of movements was now perfect.

Dr. ALBERT A. GRAY showed some Stereoscopic Photographs illustrating the Comparative Anatomy of the Labyrinth of Reptiles, Birds, and Mammals.

Mr. SYDNEY R. SCOTT read notes of a case of Otitic Meningitis with Histological Specimens of the Labyrinth, demonstrating streptococci *in situ*.

Mr. JOHN M. DARLING read an abstract of his recent work on Cytological Examination of the Discharge in cases of Middle Ear and Maxillary Sinus Suppuration.

At the close of the meeting Professor D. J. CUNNINGHAM gave a Lantern Demonstration of some of the Central Connexions of the Auditory Nerve which was much appreciated by those present.

The meeting in itself was most successful and was rendered all the more so in consequence of the hospitality shown by the President and Dr. Logan Turner.

[1] THE LANCET, July 4th, 1908, p. 50.

OPHTHALMOLOGICAL SOCIETY.

The Visual Fields in Pigmentary Degeneration of the Retina.—Exhibition of Card Specimens.

THE annual general meeting of this society was held on July 10th, Mr. R. MARCUS GUNN, the President, being in the chair

Mr. M. L. HEPBURN read a paper, with lantern illustrations, on the Visual Fields in Pigmentary Degeneration of the Retina. The contribution was based upon 26 cases, which were tested in various ways, owing to the risk of error and the knowledge that much depended on the intelligence of the patient. Mr. Hepburn had chiefly aimed at estimating the amount of relatively functioning area remaining; in other words, how much of the retina had escaped destruction in such cases. Unless the rods and cones had been hopelessly damaged the retention of visual acuity was a matter of degree. Where the patient showed uncertainty the matter could be placed beyond doubt by stronger illumination. As it was desirable to have a definite standard to work to he had taken as his standard a 10 millimetre test object in natural light. He pointed out the relationship between the several varieties and showed slides in illustration. The pathological changes in chronic inflammation were of two kinds and were represented by two kinds of visual fields. He raised the question whether the islands of vision occasionally seen through scotomata represented portions of retina which had escaped disease, the re-establishment of the circulation, or formation of a new system of vessels.

Mr. W. H. H. JESSOP showed a case of Pseudoglioma and a beautiful series of photographs of the Fundus Oculi by Professor Dimmer. Electricity was the illuminant.

Mr. P. S. BARDSLEY showed several ingenious mechanical improvements in instruments. One was a new form of needle-holder, another an adjustable modified trial frame, and a third an improvement in the "Moorfields" ophthalmoscope, introducing a double hole for indirect vision.

UNITED SERVICES MEDICAL SOCIETY. — A meeting of this society was held at the Royal Army Medical College on July 9th, Lieutenant-Colonel C. H. Melville, R.A.M.C., being in the chair.—Lieutenant-Colonel G. S. Thomson, I.M.S., read a paper on Enteric Incidence in India and the Tropics and its Lessons. A number of diagrams were exhibited showing the case rate in different branches of the services, the seasonal prevalence of the disease, and the rate of attack in the two sexes and at different age periods. He then advanced the theory that an excessive consumption of proteids produced a condition of the intestinal mucous membrane which was favourable to the attack of the bacillus of enteric fever and brought forward a large amount of evidence to show that this "luxus consumption of proteids" controlled in great measure the incidence of enteric fever in India. Prophylaxis included—(1) the adoption of measures for preventing the effective access of the germ; (2) the practice of increasing the individual's resistance; and (3) the alteration of environment of our armed forces by means of perfect sanitation. It was maintained that the entire dietary of the army required revision and that regulations should be made to adapt it to the wants of the soldier in the various climates in which he is called upon to serve.—In the discussion which followed it was suggested that too much importance had been attached to his theory by Lieutenant-Colonel Thomson and that other causes had been at work in the cases which provided the statistics. It was, however, stated in support of the "luxus consumption of proteids" theory that in West Africa where much proteid was consumed enteric fever prevailed. Allusion was also made to the freedom from enteric fever of the Japanese army in the late war.—Major W. S. Harrison, R.A.M.C., Captain J. Dorgan, R.A.M.C., Major H. W. Grattan, R.A.M.C., and Lieutenant-Colonel Melville were among the speakers.—A hearty vote of thanks was accorded to Lieutenant-Colonel Thomson on the motion of Lieutenant-Colonel Melville.

"W. G."—Mr. W. G. Grace, the well-known cricketer, who practised for many years at Bristol, celebrated his sixtieth birthday on July 18th.

Reviews and Notices of Books.

Fevers in the Tropics, their Clinical and Microscopical Differentiation, including the Milroy Lectures on Kala-azar. By LEONARD ROGERS, M.D. Lond., F.R.C.P. Lond., F.R.C.S. Eng., B.S. Lond., Major, I.M.S., Professor of Pathology, Calcutta University; Fellow of the Calcutta University. Oxford Medical Publications. London: Henry Frowde, Oxford University Press; and Hodder and Stoughton. 1908. Pp. 343. Price 30*s.* net.

THE art and science of Tropical Medicine have ever been furthered by the writings and practice of the officers of the Indian Medical Service, but we venture to think that the reader of this work after a perusal and digestion of the vast amount of information contained in its pages will recognise that at length the intricate subject of the fevers of the tropics has received an elucidation to which it had previously been a stranger. For Major Leonard Rogers has indeed produced a monumental work the like of which has not appeared previously. Nor has he rushed into print prematurely. The book is based on his personal experience gathered after many years of practical work, the account of the fevers in the tropics being based on the notes and charts of some 2000 cases in which he has personally examined the blood by modern diagnostic methods. From an officer of his reputation we should expect much original information: we venture to say that the readers of this great work will not be disappointed.

The book begins with the history of the evolution of our knowledge of the fevers of India, in which the work of James Lind, John Clark, James Annerley, William Twining, Ronald Martin, Francis Day, Charles Morehead, Vandyke Carter, Joseph Fayrer, Norman Chevers, and Campbell Maclean is duly recognised. The account concludes with the work done by Sir Almroth Wright and the late Brigade-Surgeon-Lieutenant-Colonel A. Crombie, C.B., I.M.S. The technique of the examination of the blood is fully described. The author divides the fevers into those of (*a*) long duration and those of (*b*) short duration. Amongst the former he republishes with additions his Milroy lectures on kala-azar, giving a very full history of the disease illustrated with excellent figures. The blood changes, the differential diagnosis, the life-history of the parasite, its mode of infection, and its prophylaxis are explicitly set forth. Next follows the account of trypanosomiasis and sleeping sickness, the clinical description of which leaves nothing to be desired. The blood changes, the diagnosis, and the treatment are also well described. We then enter upon the important question of typhoid fever and paratyphoid. This is illustrated by several excellent temperature charts which are seen to be very unlike those of typhoid fever occurring in temperate climates. Its occurrence in natives, formerly denied, is well pourtrayed. In the treatment Major Rogers most sensibly advises without hesitation everyone going to parts of the East where typhoid fever is common to submit to the double inoculation. He does not appear, however, to have any experience with the administration of oil of turpentine, employed with such success by Dr. R. M. Simon of Birmingham.

Indian relapsing fever and African tick fever are described, the classical researches of Vandyke Carter receiving their due recognition. Malta fever or undulant fever, as it was named by the late Captain Louis Hughes, R.A.M.C., is discussed. This fever has only been recognised in India as such in recent years, so that our knowledge of the exact prevalence of the disease in the East is still very deficient. The author deals with the subject of the pre-suppurative stage of amœbic abscess of the liver, the course of which and its rapid cure are described for the first time,

and he shows how the method advocated has led in the European General Hospital at Calcutta to a great reduction in the number of cases of abscess of the liver. Major Rogers strongly recommends the treatment with large and repeated doses of ipecacuanha. Epidemic dropsy is considered, and here we do not find any mention of Dr. T. F. Pearse's arguments in support of its identity with beri-beri. A chapter on the unclassified long fevers concludes this section.

In the portion of the work relative to the fevers of short duration we find a full description of malarial fever, illustrated with some excellent figures and plates, and the epoch-marking researches of Ross are narrated. The subject of dengue is taken up and then we come to that of plague. We are glad to see that the author considers Mr. Haffkine's method of inoculation with a vaccine of dead plague bacilli to have marked protective powers both in reducing the incidence of the disease and in diminishing the death-rate amongst those who may be subsequently attacked. With regard to the destruction of rats, Danysz's bacillus has been frequently tried in India but without much success.

The researches of our American *confrères* on yellow fever are narrated, Finlay's work with regard to the mosquito hypothesis, which is not always recognised, being mentioned and due credit being given to that physician. Heatstroke, the prophylaxis of which is so vitally important to all who are serving in the East, is discussed. The microbic theory evidently is not believed in by the author, nor has it ever found credence with those serving in India. With regard to prophylaxis, we do not find any mention of the successful results ensuing from the actinic theory of Colonel F. N. Maude, R.E. This section of the fevers of short duration concludes with a description of the "seven-days fever," first differentiated by the author from malaria, and also of the "three-days fever," recently recognised in India. The concluding chapter is on the incidence of various specific fevers in the East—namely, typhus fever, cerebro-spinal fever, influenza, and the exanthematous diseases.

From the enumeration of the contents of this admirable description of the fevers of the tropics the intending worker in these regions can perceive that Major Rogers has given him what has previously been non-existent—namely, a complete, scientific, and thoroughly up to date monograph of the perplexing fevers of India. The work will remain always a monument to his energy, whilst the members of the medical, military, and civil services owe to him a deep debt of gratitude. We have rarely perused with such pleasure any work on medicine.

Moveable Kidney, its Pathology, Symptoms, and Treatment. By HAROLD W. WILSON, M.B., B.S. Lond., F.R.C.S. Eng., Demonstrator of Anatomy and Chief Assistant in the Surgical Out-patient Department, St. Bartholomew's Hospital, late Luther Holden Research Scholar; and C. M. HINDS HOWELL, M.A., M.B., B.Ch. Oxon., M.R.C.P. Lond., Junior Demonstrator of Physiology, late Casualty Physician, St. Bartholomew's Hospital; Pathologist, late Registrar, to the National Hospital for the Paralysed and Epileptic. With illustrations. London: Edwin Arnold. 1908. Pp. 104. Price 4*s.* 6*d.* net.

MOVEABLE kidney occupies a rather curious position in medicine at the present time. It is held by some that the condition is very common and very trivial, that it causes no symptoms of any importance, and that all the treatment required is the application of a belt. Others, again, hold that a moveable kidney is a serious matter, that it gives rise to most important symptoms, and that the only satisfactory treatment is nephrorrhaphy. The text-books differ so greatly from one another in this matter that it is hard for those who have not investigated the condition to form a settled opinion It is therefore well that a book should have been devoted specially to this subject and that it should have been written with care and moderation.

The first to draw attention to moveable kidney appears to have been Mesne of Venice in 1561, and he attributed it to the presence of a renal tumour. In 1682 Riolan recognised the clinical importance of the condition, and he pointed out that a rapid loss of the perinephric fat played an important part in its production. The first full account, however, of moveable kidney was given by Rayer in 1839, and he treated it by means of a belt. Martin, in 1878, removed a kidney which was moveable, but Hahn, in 1881, was the first to attempt to fasten the kidney in position.

It must not be forgotten that the kidney has a certain range of movement even in health, some authorities estimating it even as high as from 3 to 5 centimetres. The question then naturally arises as to the conditions which justify a diagnosis of moveable kidney. The authors say that one of the three following conditions must be present: (1) excessive respiratory descent, so that not only the lower pole but most of the anterior surface of the kidney shall be palpable on deep inspiration; (2) a capability of abnormal mobility communicated to the organ from the exterior; and (3) a possibility of rotation of the kidney. An account is given of the anatomical relations of the organ and it is stated that the suspensory ligament, which passes upwards and inwards from the upper part of the perinephric sheath and the prolongation inwards of the retro-renal fascia at the hilum are important factors in the limitation of movement and in the maintenance of the kidney in its proper position. The lower mass of the capsula adiposa also lends support to the kidney in the erect position.

The etiology of moveable kidney is fully discussed and the authors believe that trauma, chronic constipation, loss of weight, and pathological changes in the kidney are definitely capable of producing renal ptosis. A long chapter is devoted to the pathology and the conclusion is drawn that "renal crises" are due to obstruction of the renal veins; when the ureter is kinked a hydronephrosis may result and infection of a moveable kidney may also occur. We agree thoroughly with the authors that it is not always advisable to tell a patient that a moveable kidney is present, for it is not rare that patients with neurotic tendencies develop many symptoms which would not have appeared if the presence of a moveable kidney had not been mentioned. The most important question in regard to treatment is in what cases is an operation required. The authors advise operation—(1) in all cases with acute renal crises; (2) in cases showing evidence of pathological changes in the kidney; (3) in cases in which the kidney is mechanically causing changes in other viscera; and (4) in cases with severe lumbar aching unrelieved by a belt. The operation preferred includes decapsulation and the stitches involve the capsule only.

The book is certainly the best that has appeared on this important subject.

The Edinburgh Stereoscopic Atlas of Obstetrics. Edited by G. F. BARBOUR SIMPSON, M.D. Edin., F.R.C.P. Edin., F.R.C.S. Edin., Senior Assistant to the Professor of Midwifery in the University of Edinburgh; and EDWARD BURNET, M.A., M.B., Ch.B. Edin. In four sections, each containing 25 subjects with descriptive text. London: The Caxton Publishing Company. 1908. Price for the four sections 84*s.* net.

THE Edinburgh Stereoscopic Atlas of Obstetrics should prove of considerable value to the student. In his preface to this work Professor Sir J. Halliday Croom points out that as the teaching of midwifery has advanced so the illustrations of text-books and of lectures have become more and more abundant, and at the same time both more accurate and better produced. Students have long been familiar with photographs and half-tone illustrations of great excellence, but this is the first instance so far as we

are aware in which the aid of the stereoscope has been invoked for their assistance. The advantages of this method are many and the instrument supplied with this atlas is an ingenious and effective one. In its completed form the atlas will consist of four sections each containing 25 subjects with descriptive letterpress. Naturally a work of this kind must be expensive to produce, but we are afraid that the price for the complete series (4 guineas) will prove too large a sum for the average student to afford. Apart from the price we consider the atlas deserving of all praise. The photographs are clear and well reproduced and the choice of subjects so far as the first section goes is good. Perhaps the description of the figures might have gone a little more into detail in some points, but the authors have no doubt thought it best only to mention the essential features in each case so as not to confuse the reader.

The atlas should prove of considerable value to such students as are able to afford to buy it or who may have an opportunity of using it.

The Labyrinth of Animals. By A. A. GRAY, M.D. Glasg., F.R.S. Edin. Vol. II. London: J. and A. Churchill. 1908. Pp. 252. Price 25*s.* net.

THIS is a continuation of the series of stereoscopic plates the first volume of which was reviewed in THE LANCET of Jan. 11th, 1908, p. 109. There are 45 plates in this volume dealing with the labyrinth of rodents, insectivores, cetaceans, sirenians, marsupials, monotremes, birds, reptiles, and amphibians, and they are in every way as beautifully executed as those in the former volume. As we have already given our opinion of the scope and plan of the work there is little now to say except to repeat that this is a book which must be in every anatomical library and that no future worker on the subject can afford to neglet it. The author expresses his indebtedness to the Carnegie Trust for assistance without which it is hard to see how the volume could be sold for its present price.

Gehirn und Schädel. Eine Topographisch-Anatomische Studie in Photographischer Darstellung. (The Topographical Anatomy of the Brain and the Skull, illustrated by Photographs.) By Dr. F. HERMANN, Professor of Anatomy in the University of Erlangen. With 69 illustrations. Jena: Gustav Fisher. 1908. Price 60 marks (£3).

THIS handsome atlas of topographical anatomy contains no less than 69 life-sized autotype photographs of the brain and the skull, depicting surface views and coronal, horizontal, and sagittal sections. Whenever necessary the plates are covered by a sheet of tracing paper on which the convolutions and different parts of the brain are accurately outlined and clearly named. Needless to say, these transparencies exactly fit the pictures on which they are superimposed. The general scheme of the work is as follows. The first group of plates in each part pourtrays a surface view and a series of sections of the brain and the skull. These plates are then repeated with, first, the outlines of the sutures and bony points of the skull; and secondly, with the outlines of the gyri and sulci projected in red, so that in a sagittal section, for example, the reader can see at a glance the relation of the pterion or the fissure of Rolando to the different parts of the brain, as displayed by sections taken in that particular plane.

The series of photographs in Part I. illustrate horizontal sections of the brain. The author carefully explains that these sections are not strictly horizontal ones, as they are made parallel to a line drawn through the occipital and frontal poles of the cerebrum, which line really forms an angle of 20° with the horizontal plane. The plates are as follows:—(1) The vault of the skull showing coronal, sagittal, and lambdoid sutures; (2) the dura mater and meningeal vessels; (3) the convolutions of the cerebrum; (4) a section through the brain above the corpus callosum; (5) a section through the middle of the basal ganglia; (6) the tentorium cerebelli and the anterior and middle fossæ exposed by removing the cerebrum after division of the mesencephalon immediately above the corpora quadrigemina; (7) the cerebellum has been removed, the upper part of the pons and cerebellar peduncles are seen in section, and the cranial nerves are seen entering their respective foramina; and (8) the base of the skull as seen from within. The succeeding plates are reproductions of, first, Nos. 2–7, with the outlines of the coronal, sagittal, and lambdoid sutures projected in red, then of Nos. 3–7, showing the outlines of the cerebral gyri and sulci; and finally of Nos. 2–5 once again, but this time with the base of the skull outlined in each.

Part II. commences with Plate No. 24, giving an anterior view of the skull, on the right half of which the soft tissues have been left. This picture shows the relations of the soft parts to the underlying bones in a very striking manner. Plate No. 25, depicting the convolutions on the frontal lobes, is followed by a series illustrating coronal sections through the anterior, middle, and posterior thirds of the basal ganglia. The above plates are reproduced again, first with the outlines of the bony orbit and coronal suture and then with the outlines of the frontal gyri and sulci projected in red. The cerebellum and the posterior part of the cerebrum are now treated in the same manner and, finally, after giving a similar series of pictures of sagittal sections the author concludes with projection outlines of the ventricles and three plates illustrating Krönlein's system of surface markings.

The above description gives a very inadequate idea of the lavish manner in which Dr. Hermann and his publisher have treated the subject. The plates must be seen to be appreciated. For beauty of design and execution they surpass anything of the kind that has yet come before our notice. The book should be of great value to teachers of anatomy and to those who are interested in cranial surgery, though for the latter we think that the atlas would have been more useful had Dr. Hermann chosen a mean between the dolichocephalic and the brachycephalic skull rather than the very typical German skulls which have been so faithfully pourtrayed.

LIBRARY TABLE.

Atlas der Ätiologischen und Experimentellen Syphilisforschung, mit Unterstützung der Deutschen Dermatologischen Gesellschaft. (Atlas of the Etiological and Experimental Investigation of Syphilis, published with the coöperation of the German Dermatological Society.) Edited by ERICH HOFFMAN. Berlin: Julius Springer. 1908. Pp. 56 and 34 plates. Price M.48.

This atlas contains a very beautiful series of plates, of which all but four are coloured, illustrating the gross lesions of syphilis as produced experimentally in monkeys, the microscopical character of the lesions, and the appearances presented by Schaudinn's spirochæta pallida in various tissues, in syphilitic lesions, and in the blood. Illustrations of other spirochætæ are included for purposes of comparison. The last four plates are reproductions of micro-photographs of the organism. The atlas deserves a place in any syphilographer's library, as it gives a complete and graphic account of present knowledge of the organism. The letterpress contains an adequate description of the plates.

JOURNALS AND MAGAZINES.

The Quarterly Journal of Microscopical Science. Edited by Sir E. RAY LANKESTER, K.C.B., F.R.S., with the coöperation of ADAM SEDGWICK, F.R.S., SYDNEY HICKSON, F.R.S., and E. A. MINCHIN, M.A. With lithographic plates and text figures. London: J. and A. Churchill. No. 207 (Vol.

LII., Part 3), June, 1908. Price 10*s.* net.—This part of the *Quarterly Journal of Microscopical Science* contains five memoirs, which are as follows: 1. Materials for a Monograph of the Ascons, describing the Formation of Spicules in the Genus Leucosolenia, with some notes on the Histology of the Sponges, by E. A. Minchin, M.A., professor of protozoology in the University of London, with five plates and five text figures. Dealing with the monaxon spicules of leucosolenia, Professor Minchin points out that in opposition to the statements of previous observers he finds that each spicule of this class arises invariably in two cells. The species examined were leucosolenia complicata and variabilis, and the technique adopted was preservation fresh from the sea in ¼ per cent. solution of osmic acid, staining with picrocarmine, and examination in neutral glycerine or Canada balsam. He thinks that the physical factors, such as crystallisation, may exert a certain influence in modifying the form of the triradiate spicules and their form and arrangement are not entirely the result of adaption. Numerous drawings of the spicules under a high power illustrate this article. 2. On Moerisia Lyonsi, a New Hydromedusan from Lake Qurun, by Charles Boulenger, B.A., King's College, Cambridge, with two plates. Birket el Qurun is a large lake in the Fayûm Province of Egypt. It is the remains of the historic Lake Moeris which was used by the monarchs of the twelfth dynasty to regulate the Nile floods and is of about the size and shape of the Lake of Geneva. With the exception of the hydromedusan here described, cordylophora, and a ctenostomatous polyzoan resembling victorella, the fauna seems to be an essentially fresh-water one, though the water of the lake is brackish. 3. The Distribution and Classification of the Onychophora, by Adam Sedgwick, F.R.S., with 13 figures. Professor Sedgwick has been led to the conclusion from his study of he peripatus that the geographical groups of the species of the genus peripatus are natural zoological groups and that the distingishing specific characters are distributed in an entirely haphazard manner in the different specific groups, so that it is quite impossible to show the phylogenetic affinities of the specific groups by any tree-like arrangements. 4. A Few Observations on the Encystation of Actinosphærium Eichhornii under Different Conditions of Temperature, by Doris L. Mackinnon, B.Sc., Carnegie Scholar 1906–07, with one plate and one text figure. Miss Mackinnon finds that at a low temperature actinosphæria form small and numerous cysts with nuclei scarcely below normal size but markedly rich in chromatin. At a high temperature the cysts formed are large and few in number with nuclei scarcely larger than those of the cold cultures but poor in chromatin. Lowered temperature was observed to paralyse the cell functions to some extent. 5. On Archerina, Golenkinia, and Botryococcus, by Sir E. Ray Lankester, K.C.B., F.R.S.

Tidsskrift for den Norske Laegeforening.—In the July number Dr. E. Grundt, senior physician to the public sanatorium at Lyster, deals with the knotty question of the classification and sifting out of sanatorium patients. While admitting the usefulness of a universal system of classification, such as Turban's or the Turban-Gerhard system, Dr. Grundt and his colleague, Dr. Kaurin of Reknaes Sanatorium, prefer the system which they have adopted for the two Norwegian public sanatoriums. Although the basis for this classification is anatomical, depending on the spread of the disease through the various parts of the lung, importance is attached to complications and the general health of the individual. Class I. includes apical catarrh in one or both lungs, slight infiltration in one or both apices, the apices being bounded by the clavicle in front and the spine of the scapula behind. Cases of pleurisy with altered respiration and percussion note come under this class in the absence of râles. The general condition of the patient must be good and his capacity for work nearly normal; temperature and digestion must also be normal. Class II. includes well-defined infiltration of both apices with or without catarrhal phenomena, or marked infiltration of the one apex and of the whole upper lobe of the other lung, slight affection of the larynx, and partial capacity for work. If the disease is chronic and digestion and general health are good, a wider area of lung may be included. Class III. includes all cases worse than those included in Class II. Cases with but slight disease of the lungs come under this heading when associated with severe complications such as genito-urinary and laryngeal tuberculosis, tuberculous enteritis and nephritis, and amyloid disease. Pregnancy may also transfer a patient from the second to the third class. Needless to say, the introduction of so many different factors makes the classification somewhat cumbersome, and both care and experience are required to insure consistency in the classification. The percentage of patients in Class III. at Lyster rose from 13 in 1903 to 30 in 1907, and though this great rise was partly due to a more rigorous sifting out of patients from Class II. to Class III. an important factor was an unusual inrush of bad cases in the end of 1906 and the beginning of 1907. Until the Turban-Gerhard classification has been sanctioned by the International Congress on Tuberculosis at Washington this year and has proved more satisfactory than previous classifications Dr. Grundt and Dr. Kaurin intend to use their present system.

The Journal of Physiology. Edited by J. N. LANGLEY, Sc.D., F.R.S. Vol. XXXVII., No. 2. London: C. F. Clay. June 30th, 1908. Price 5*s.*—The contents of this number are: 1. The Effect of Excess of Carbon Dioxide and of Want of Oxygen upon the Respiration and the Circulation, by Leonard Hill and Martin Flack. 2. The Temperature Coefficient of the Rate of Conduction in Nerve, by Keith Lucas, Fellow of Trinity College, Cambridge. 3. The Temperature Coefficient of the Rate of Conduction and of the Latent Period in Muscle, by V. J. Woolley, Fellow of King's College, Cambridge. 4. The Action of Optical Isomers: iii., Adrenalin, by Arthur R. Cushny, M.D. Aberd., F.R.S. 5. The Structure of the Autonomic Nervous System Compared with its Functional Activity, by C. U. Ariens Kappers, Amsterdam. 6. On the Assimilation of Protein introduced Parenterally, by W. Cramer. 7. On the Assimilation of Protein introduced Enterally, by Harold Pringle and W. Cramer. This part also contains the Proceedings of the Physiological Society for May 16th and June 20th, 1908.

Reports and Analytical Records
FROM
THE LANCET LABORATORY.

GLYCO-LECITHIN.

(ARMOUR AND CO., ATLANTIC HOUSE, HOLBORN VIADUCT, LONDON, E.C.)

ACCORDING to our analysis this is a glycerinated alcoholic emulsion containing the peculiar phosphorised and nitrogenous fat lecithin to the extent of one grain of the animal substance to one drachm of the fluid. We had no difficulty in separating lecithin from the emulsion in the form of a yellow oily substance. This on oxidation in the presence of an alkali yielded phosphoric acid. The fluid does not coagulate on boiling but does so on the addition of weak hydrochloric acid. The preparation appears to us to be an effective way of administering lecithin which is well known to have a favourable effect on the functions of nutrition and to give tone to the nervous system.

MEAT PORT NUTRIENT.

(SUTTON, BENDLE AND CO., 148, SLOANE-STREET, LONDON, S.W.)

We have not hitherto examined port wine said to be prepared with meat which contains, as do the two specimens

sent to us, any important quantity of proteins of real nutritive value. Of the samples sent to us, one contained as much as 1·543 per cent. of protein (calculated on the total nitrogen which amounted to 0·245 per cent.) and the other as much as 3·23 per cent. of protein, equivalent to 0·513 per cent. of total nitrogen. These figures bear out the statements that the protein present represents respectively at least 7·00 and 14·00 per cent. of raw meat substance. It is probable that not all the nitrogen present is represented as real protein, but it cannot be far short of this representation, inasmuch as bromine water gave a precipitate practically equal to the amount of protein above stated. Both specimens gave an abundant curdy precipitate when bromine water was added to them. The addition of tannin resulted also in a voluminous precipitate. As might be expected, the wine proved to be free from tannin and showed also a reduced amount of acidity. The complete analysis of the sample containing proteins equivalent to 7 per cent. of raw meat substance was as follows:—Extractives, 11·00 per cent.; mineral matter, 0·55 per cent.; phosphoric acid, 0·085 per cent.; total nitrogen, 0·245 per cent.; and alcohol by volume, 20·24 per cent. The addition of iron salts did not produce a black colour characteristic of tannin, whereas, of course, ordinary port wine invariably gives a positive result. Judging from the palate, port wine of good quality is employed, there being the slightest suspicion only of a flavour due to the addition of meat substance. The presence of phosphates is noteworthy, their introduction being due to the proteins present. The wines are correctly described and no doubt will be of value in cases where a combined nutrient and stimulant are indicated, as in cases of defective nutrition following recovery from disease.

PENGUIN EGGS.

(MESSRS. SPRIGGENS AND CO., LEADENHALL MARKET, LONDON, E.C.)

By the courtesy of the trades' commissioner for the Cape of Good Hope we have been favoured with some samples of penguin eggs from the above agents. We understand that these eggs are now being regularly shipped to the London market and they promise, therefore, to form in the near future a part of our dietary. We find that they are similar in texture and flavour to plovers' eggs, the white part being when cooked almost transparent. This part, on the whole, has no particular flavour but the yelk is, we think, quite agreeable to the taste. Even when eaten alone there is very little evidence of a fishy flavour, although there are some who assert that they can detect such a flavour, and therefore it is suggested that the egg would be useful as an adjuvant to foods in the shape, for example, of an egg sauce or prepared in a mayonnaise. In South Africa the eggs are served up for breakfast after being boiled for at least 20 minutes, and then they form an attractive food eaten warm after the addition of pepper, butter, and salt. The eggs reach England, we understand, within about three weeks of their being laid, and on the journey they are kept in cold storage. They are collected from islands situated off the west coast of Cape Colony. The Government controls the industry. These eggs are undoubtedly very nourishing and very rich in fatty phosphorised constituents but we fancy that they will appeal more to the epicure or gourmet than to the general public as a food. This new departure is certainly an interesting one from the dietetic point of view.

SPECIAL DRY CIDER (GOLDEN PIPPIN).

(WILLIAM EVANS AND CO., HEREFORD, AND HELE, EXETER.)

We have rarely examined a sample of cider in bottle showing as does this specimen such a relatively small amount of sugar and of volatile acids. Moreover, the alcoholic strength is only moderate and the total extractive matters are small. The following results of analyses which we made speak for themselves: alcohol, by volume 6·55 per cent.; extractives, 1·89 per cent.; mineral matter, 0·25 per cent.; sugar, 0·71 per cent; fixed acidity reckoned as malic acid, 0·268 per cent.; and volatile acidity reckoned as acetic acid, 0·096. In view of these results it is all the more satisfactory to find that the presence of preservatives could not be traced. The taste was pleasantly and delicately apple-like yet decidedly dry without being sour. We are of the opinion that this is a wholesome, refreshing, and agreeable beverage.

CONTREXÉVILLE MINERAL WATER (SOURCE DU DR. THIERY).

(AGENTS: C. G. ADAMS AND CO., SARACEN'S HEAD BUILDINGS, 36 AND 37, COCK-LANE, SNOW HILL, LONDON, E.C.)

This water, which has a reputation in the treatment of gout, rheumatism, and urinary disorders, owes its efficacy no doubt chiefly to the alkaline mineral salts present. These include the carbonates of magnesium, potassium, sodium, and calcium. There are present also the sulphates of the same alkaline metals. Spectroscopic analyses further revealed lithium. The quantitative analysis which we made substantially confirmed that already published. The total saline ingredients amounted to 2·524 grammes per litre, of which the calcium salts amounted to 1·96 grammes, and the magnesium and sodium salts to 0·50 gramme. The water was alkaline in reaction, a litre being equal to the neutralising effect of 0·512 gramme, or eight grains, of bicarbonate of sodium. The water showed an excellent condition of organic purity. A liberal course of this water gives favourable results in cases of catarrh of the gastro-intestinal and urinary tracts and is said to be useful also to those who are placed upon a restricted diet on account of obesity.

SCHIEDAM AROMATIC SCHNAPPS (WOLFE).

(THE FINSBURY DISTILLERY CO., MORELAND-STREET, FINSBURY, LONDON, E.C.)

According to our analysis this is a spirit obtained in the pot-still and contains those aromatic oils to which are ascribed the diuretic properties of Hollands. Our analysis gave the following results: alcohol, by volume 46·59 per cent., equal to proof spirit 81·64 per cent.; extractives and mineral matter, *nil*. The total secondary products of fermentation and distillation amounted to 244 grammes per hectolitre of alcohol present. Amongst these furfural occurred to the extent of 4·40 grammes, ethers 49·73 grammes, and higher alcohols 153·00 grammes. These figures are quite consistent with the statement that the spirit is a genuine Hollands gin. It possesses to a marked degree the peculiar flavour of that spirit. There seems little doubt that Hollands gin owing to its diuretic action is absorbed and eliminated more quickly from the system than are other ardent spirits.

LIQUID TOILET SOAP "DISPENSER."

(CHARLES FLINT, 25, VICTORIA-STREET, WESTMINSTER, LONDON, S.W.)

Sanitarily speaking, the use of liquid soap presents decided advantages. It is obvious, for example, that after the use of such soap by a person the quantity employed is then and there done with and does not come into contact with the individual who succeeds him. On the other hand, the hard cake of soap is commonly handled by a number of persons. On the whole, however, we regard such an argument in the light of a refinement, and it may be borne in mind that soap itself possesses distinctly antiseptic properties. The use of liquid soap in the "dispenser" sent to us by the above firm is, however, convenient. The apparatus consists simply of a glass reservoir of soap which may easily be tipped so that a requisite quantity of liquid soap is discharged. The apparatus, of course, is placed over the ordinary washhand basin. The capacity of the container is such that one filling is said to be sufficient for from 500 to 700 washings. The system has been devised on the idea of avoiding "preceding contamination." This end it clearly succeeds in accomplishing.

THE LANCET.

LONDON: SATURDAY, JULY 25, 1908.

Hygiene in Elementary Schools.

THE attention which has been directed during the last few years to questions bearing upon the physical health of the rising generation has at last borne what promises to be good fruit in a systematic endeavour to promote the teaching of the principles of hygiene in elementary schools. An essential preliminary to such an endeavour is, of course, the provision of competent teachers, and to this end the Board of Education has issued a set of revised regulations for the training of teachers for elementary schools which will come into operation on August 1st and which appear well calculated to lay the foundations of a result of national importance. In a memorandum prefatory to the regulations themselves the Board explains the difficulty of harmonising the conflicting claims upon student teachers of general and of special knowledge; that is to say, of the good general education which will help them to preserve intellectual freshness and moral vigour through the arduous labours of their lives and of the special professional training which is considered by common consent important for all teachers and for all but the most gifted absolutely requisite. Under the latter head must be included not only instruction in the art of teaching but also an adequate knowledge of certain special subjects which are now essential to the calling, "though not needed in other professions and therefore not necessarily finding a place in the usual courses of a good general education." In this category the Board places "instruction in hygiene" as one of two "special subjects" which at the present moment are becoming recognised on all hands as of vital importance in connexion with the work of elementary schools, while the second place is given to physical exercises. We should at first sight be somewhat inclined to dispute the assertion that a knowledge of hygiene is "not needed in other professions," inasmuch as we conceive it to be of essential importance to the right conduct of that profession (if so it may be called) of living which practically embraces and conditions all others; but we must regretfully admit that it is seldom included in any school or university curriculum and that the classes amongst us who are commonly described as "educated" are often those who display the most profound ignorance alike of its importance and of its requirements. The notions of hygiene entertained by the squire, and the parson, and the lawyer, and the Member of Parliament are generally, in the language of a recent medical writer, such as they have received in infancy from a nursery-maid who, in her turn, had received them from her grandmother.

The new regulations, being concerned with the training of teachers only, afford no clue to the extent to which these teachers will ultimately be permitted or encouraged to impart the instruction in hygiene which they will themselves receive; and it is manifest that information on this head cannot be expected until a sufficient staff has been provided to give effect to any future decisions upon the question. But the regulations contain a model syllabus, to which the authorities of training schools will be expected in all essentials to conform, although they are permitted to offer, for the consideration of the Board, any modifications of this syllabus which they may deem expedient, or which their special circumstances may appear to them to justify or to require. Such modifications are not likely to be important or far-reaching; and, apart from them, we think the syllabus as it stands will receive the cordial approval of the medical profession. It provides for a course of 12 lectures, intended to familiarise the student with the general principles of hygiene, with a view to their practical application when he becomes a teacher in the educational and personal interests of the children under his care. It is not meant as a guide to the instruction to be given to the children themselves, but to afford to the student teacher a good general view of the subject as a whole; and it is to be aided by class-work with practical demonstrations, and by opportunities for the students to question the lecturer. Among the subjects dwelt upon are the disabilities arising from defects of sense-organs and the importance of cleanliness, both personal and domestic, as a condition of the healthiness of schools; and the course, as a whole, seems well calculated to diffuse, among a large and influential section of the community, a kind and an amount of knowledge in which not only the elementary school children and their parents, but even the classes from which the teachers themselves are mainly recruited, have hitherto been deplorably deficient. The extent of the effect likely to be produced may be roughly estimated from the fact that the recognised training colleges mentioned in an appendix to the regulations are licensed to receive 5499 resident and 5644 day students, and that in connexion with the "day" colleges licensed "hostels" afford living accommodation for 937 women and 87 men. We cannot say to what extent the existing places are occupied; but the very fact of such abundant provision is at least sufficient to prove the largeness of the demand and to show that the new teaching can hardly fail to become widely diffused among a very intelligent section of the adolescent members of the community.

Almost the first inquiry which will suggest itself to the managers of training colleges, to whom the new regulations will come as instructions for their guidance, will unquestionably be, "Who shall teach the teachers?" and public opinion will demand that a clear answer to this inquiry shall proceed from the medical profession, to whose members the new circumstances offer opportunities of the highest possible value. Nothing is born full grown and nothing but disappointment could ensue from great expectations of immediate results. But the lectures required by the Board of Education can only be intelligently given by medical men and we entertain no doubt that the immediate environment of every training college will furnish a medical lecturer fully equal to the demands upon him and fully cognisant of the

responsibilities which they involve. The effect of his teaching should be, gradually but surely, to impress upon the working classes of this country the extent to which they now suffer in health and life from preventable evils; from public insanitary conditions due to the ignorance or the neglect of the municipal authorities for whom they vote; and from private conditions, such as personal and domestic uncleanliness, waste of money upon innutritious foods and inordinate beer swilling, to which it would be in their power to apply remedies themselves, if only their consciousness of effects were once guided to a perception of the nature of causes. The *Times*, in a recent leading article upon the subject, referred to PALEY'S definition of education as including "every preparation that is made in our youth for the sequel of our lives," and rightly suggested that no preparation could be more important to the industrial classes than one which would assist them to preserve the health which is their sole possession and the indispensable condition of their comfort. If the teaching of hygiene compels parents to send their children to school with clean faces it will take the first step towards inducing these children, when they become adults, to wash themselves when they return from work, and to insist, as Americans insist at present, upon opportunities for cleanliness in factories. Our system of elementary education has from the beginning been hopelessly wrong in one respect, that it has been more guided by the possible achievements of a few than by the obvious necessities of the many. Politicians have sought popularity by proclaiming their desire that the school should afford to all children opportunities which might enable them to rise in life, or, in other words, to escape from what the homely language of the Church describes as "the state unto which it has pleased GOD to call them"; and they have consequently wasted "schooling" upon thousands who have had no possible use for it and to whom at the same time they have neglected to impart the only lore which they were capable of turning to good account. If the elementary school children of the next few generations can be taught to take proper care of their bodies they will in all probability be the parents of others who will derive benefit from a degree or kind of scholastic training which at present is almost entirely wasted and thrown away.

The Metropolitan Water-supply.

THE Metropolitan Water Board considered at its last meeting the reports of its various committees for the year 1907-08. From the point of view of the ratepayer it is possible that the report presented by Lord SELBY, chairman of the Finance Committee, will prove of the greatest interest, and we may allude briefly to the somewhat serious financial outlook to which he directed the Board's attention. The balance-sheet for the last financial year shows a practical equilibrium between debit and credit, although during the four years of the Board's existence the total surplus has been £30,000. No accurate estimate can be made for the current year until the revenues which the new rating Act will produce have been reckoned up, but there is every prospect of a deficiency upon the year's working which, at a moderate estimate, will be £24,000 and may not impossibly amount to £70,000. It must also be remembered in connexion with the financial position of the Board that the Board's debt, which results from the enormous sum of purchase money paid to the old companies, now stands at £48,309,000, and that the sinking fund to be set aside to extinguish the debt does not begin for another 15 years. The most surprising feature of the report is the statement that the working expenses of the Board during the last year were £115,000, or over 16 per cent., more than those of the companies during the last year of their existence. It is true that some of this money will produce revenue, as it has been employed in "accommodation works" and new supplies, but Lord SELBY confessed that such a consequence always attended the transfer of undertakings from private enterprise to the control of public bodies, a contingency that was pointed out in our columns upon the creation of the Board. All this seems to point to a day not far distant when consumers, other than those in occupation of highly assessed premises, may find a substantial addition to their water bills.

But there is a brighter side to the question, and if the expenditure upon the water-supply of the metropolis has increased enormously there is no doubt that London can depend to-day upon a better and purer water-supply than it has ever known since PETER MORRYS set his wooden wheels to throw Thames water over St. Magnus' steeple. Although we have often, and indeed recently, felt it our duty to call attention to the serious imperfections which still remain, chief amongst which is the almost continual presence of bacillus coli in appreciable amount in filtered water, we do not forget that there is a force working constantly, though quietly, for better things, ever gaining experience, and seeking to meet with increasing success the dangers inseparable from a water-supply derived almost entirely from sewage-polluted rivers. This force is at work in the laboratories of DR. A. C. HOUSTON, the director of water examinations to the Board, and the fruits of the diligent labours of the staff under his able control are well shown in such reports as that which we summarise on page 255 of our present issue. This presents the result of Dr. HOUSTON'S recent research work dealing with the vitality of the typhoid bacillus in artificially infected samples of raw Thames, Lea, and New River water, with special reference to the question of storage. This research bids fair to establish a very important principle which has been foreshadowed by earlier workers, such as FRANKLAND in this country and JORDAN, RUSSELL, and ZEIT in America, for in 18 experiments with unfiltered water infected with enormous numbers of typhoid bacilli it was found that over 99 per cent. of these organisms died as the result of simple storage of the water for four weeks; and although the few that survived for even two months might obviously remain a source of danger if the experiment were applied to infected sewage in the actual water-supply, yet a great protection would be afforded by the destruction of the vast majority of typhoid bacilli which would result if the principle of a "safety period" of storage could be uniformly adopted. Dr. HOUSTON considers that the "safety" of an adequately

stored water may possibly come to be "accepted so fully as even to afford justification for filtration through mechanical filters at a specially rapid rate, with the result of thus compensating to a large extent for the initial cost of the storage reservoirs." Be this as it may, he hopes to be able to establish comparatively simple tests to determine whether any given volume of raw river water is as the result of storage in a "safe" condition to be let through the filter beds. This would constitute an administrative advance of prime importance, for at present a large amount of water reaches its consumers which has not been tested bacteriologically; indeed, we understand that the arrangements of many of the filters do not permit of samples being taken of the water passing through each individual bed. The research lends a greatly increased authority to the policy which Dr. HOUSTON has advocated persistently in his reports, and in which he has always had our support—namely, that of greatly increasing the storage accommodation, for it now seems necessary to insist upon a minimum number of days' storage for all water, independent of the period necessary to insure a constant supply. Some help in this direction may be obtained by linking up the unfiltered reserves of the different systems in the same way as has been done with the filtered supplies, but we can see no adequate method of adopting a counsel, not of perfection but of common-sense, except the provision of extensive new reservoir accommodation, even at the risk of increasing the cost of production. The policy receives further support from another side in Dr. HOUSTON'S recent annual report of water examinations, which shows that as a result of inadequate storage following the December floods the January filtered water in five districts showed only 10·9, 21·8, 10·5, 21·1, and 23·4 per cent. of 100 cubic centimetre samples which contained no bacillus coli, whereas in the summer months when the supply was under control between 88 and 100 per cent. of similar samples examined showed no such contamination.

There is one statement in Dr. HOUSTON'S research report which deserves examination. He says: "There is no convincing evidence that the incidence of diseases liable to be water-borne has been appreciably greater in the case of 'Water London' than in the case of other large communities deriving their water-supply from unpolluted sources." In 1894 Sir SHIRLEY FORSTER MURPHY, the medical officer of health of the administrative county of London, published a very remarkable appendix to his annual report regarding the distribution of enteric fever in London, which appeared to establish its very definite relation to the water-supply. We have not space even to summarise the various statistics on which he founded his conclusions, but we may say that in an interesting series of charts he showed graphically an unusual increase in enteric fever during the forty-ninth, fiftieth, and fifty-first weeks of 1894 over all "Water London," except in the areas supplied by the East London and Kent Companies, whereas the average normal curve of the disease for the other years during which statistics were available shows a decline during those weeks. The same abnormal increase was observed in the same weeks amongst communities supplied by the Thames and Lea outside London, whereas the "curve of typhoid incidence" followed its normal downward course in districts otherwise supplied. This increase followed on exceptionally heavy floods, and there is a striking similarity between a curve plotted to show the increased weekly discharges of the Thames and Lea during the last weeks of the year under discussion and the increased incidence of enteric fever in "Water London." The "curve" showing this incidence in the Grand Junction area is almost identical with the "curve" which represents the Thames floods, the latter reaching their highest point a fortnight before the height of the notification of the increased incidence of enteric fever. There are other features of note about the document which entitle it to a more prominent place in the epidemiology of this disease than we believe it to have gained. The story is an old one, but it carries a valuable lesson. Whilst bringing it to notice we can still repeat that we believe the metropolitan water-supply is better and purer than was the case in those days, and if the Board wishes to continue to improve it, it will do well to turn a ready ear to the advice of its scientific advisers, for on that foundation alone rests the safety of "Water London."

The Needs of Medical Education in London and Elsewhere.

A CORRESPONDENCE has taken place in the *Times* on the subject of medical education which we hope will do something to awaken the public intelligence to the fact that the instruction of medical students in this country, though of the highest standard that civilisation has yet seen, is practically unendowed. So far as London is concerned the training of the student is largely conducted at the personal expense of the teachers, while in many other centres in the United Kingdom the pinch of poverty is distinctly felt. The correspondence was started by a letter from Mr. HENRY MORRIS pleading with the public for financial assistance to carry on the work of the metropolitan medical schools. Mr. MORRIS'S letter was, however, distinctly controversial, so that while all medical men are agreed with its main thesis, that the public ought to assist in the work of medical education, a considerable proportion of them do not endorse certain of Mr. MORRIS'S opinions. This is unfortunate, because controversy among medical men is exactly what ought not to be apparent when it is sought to obtain a public subsidy. The fact that Mr. MORRIS is President of the Royal College of Surgeons of England at the present moment must make it difficult for him to express any views upon medical education which will not be taken as in some sense to voice the opinion of the leaders of medicine, unless the fact that there is another side to the various questions is prominently brought out. Mr. BUTLIN at once joined issue with Mr. MORRIS as to the merits and possibilities of a scheme for the concentration of preliminary medical study in London, and the public is now aware that when Mr. MORRIS appears as the whole-hearted opponent to the principle of concentration he is speaking for himself and not for his College, or for the teachers in the London medical schools, or even for his colleagues on the staff of the Middlesex Hospital. His opinion must be treated with all possible respect as that of a great surgeon, a

great teacher, the President of a great medical corporation, and the generous supporter with his purse of his own medical school. But when that has been said it must be pointed out that many persons as well qualified as Mr. MORRIS to know what they are talking about differ from him flatly. It is not denied that the present rulers of the University of London have returned to the donors the money subscribed for a Central Institute of Medical Sciences, but this does not mean that the leaders of the medical profession are unanimously opposed to the principle of concentration or willing to resign a policy to which so many able medical reformers are pledged.

The question of concentration of the preliminary medical studies of the London medical student is not a matter which concerns only the London student and his teachers, it is one of deep interest to the Royal College of Physicians of London, to the Royal College of Surgeons of England, to the University of London, and to the public. At the present moment there is a shortage of medical students in all the London schools save two or three, and while too much stress must not be laid upon this fact—inasmuch as a somewhat comparable shrinkage in medical students can be discovered at many of the provincial and Scottish schools—yet the fact remains that it is in London that the decrease has been most marked. Over and over again our columns have proved that one reason why the medical student no longer seeks a London school is that he finds it difficult to obtain in London a degree in medicine although the work which he has to do to obtain the double diploma of the English Conjoint Board would secure him an M.D. degree at many or most other centres. Over and over again the unfair position of the London student has been demonstrated, and when the University of London was recently reconstituted one of the determining factors in the movement was the resolve of the London medical teachers to obtain fair play for their students. The University has now been reconstituted, but the London medical student is as far as ever from obtaining a medical degree upon reasonable terms, because his educational course is not properly kept in touch with his university, while his university attempts to maintain the honour standard in examinations by putting a premium on marks in the more unnecessary parts of those examinations. Some four years ago the representatives of nine great metropolitan hospitals accepted with warmth the proposal that the University of London should undertake the instruction of medical students in the preliminary scientific subjects of the curriculum. We welcomed this expression of opinion, which was practically unanimous, for the position of University College Hospital and King's College Hospital, the two great hospitals which did not publish their views, was a special one in connexion with the University of which they were integral parts. We saw in the attitude of the hospitals promise of a practical step towards the securing for the London medical students a degree on reasonable terms—that is to say, the chances of each student graduating would be increased not by a lowering of the standard of the University but by an improvement in the machinery and quality of the instruction supplied. Our view was, and is now, that the faculty of medicine of the University of London was in no sense committed to the opinion that one institute of medical sciences should necessarily replace all the medical schools of London, and this for every sort of instruction except clinical. We realised from the first that the mere size of London would probably entail the grouping of the schools into two or three centres, but even in this way great economy of time and trouble would be effected and a larger number of medical students would be attracted to London, to the great benefit of the London medical schools and also of the Royal Colleges. For the Royal Colleges will inevitably suffer, as one of the correspondents to the *Times* has indicated, unless they can coöperate in the work of medical education with the University of London. 12 separate and rival schools can never coöperate either with each other or with any university.

The matters at issue are very important and we hope that the correspondence in the *Times* will help the public to understand them. They are several, and it is a mistake to regard them as indissolubly blended. The urgent need in which medical education stands of pecuniary support is one; the hard position of the London medical student is another; the outlook of the corporations and the possibility of their coöperating with the University of London make a third and a fourth subject for anxious thought. We do not assert that a scheme for the concentration of preliminary medical studies will satisfactorily solve all the points of difficulty with which these questions bristle; but we regret that Mr. MORRIS should have appealed to the public in terms that can only be regarded as contemptuous of those who hold the view that in a scheme for concentration lies the best chance for coöperation between the Royal Colleges and the University, and the fairest promise of justice to the London medical student.

The Control of Tuberculosis in Ireland.

THE high level and the recorded increase of the death-rate from pulmonary tuberculosis in Ireland is a matter which may well stir the public health conscience of the Irish people even as the problem of the prevalence of this disease is of the deepest interest to the epidemiologist. The Irish Local Government Board has presumably satisfied itself that the disease is certainly on the increase and that the recorded rise in the death-rate is not due to an altered relation between the sick and the healthy in consequence of the emigration of the non-tuberculous. Similarly the Board has, we imagine, satisfied itself by careful research in the department of the Registrar-General that a suggestion contained in the recent report relative to the health of Belfast, to the effect that not improbably deaths from diseases other than tuberculosis may have been wrongly registered as due to tuberculosis, has no basis in fact. It is a remarkable and interesting circumstance that the incidence of tuberculosis upon the Irish in many parts of the world appears to be excessive not only upon those actually born in Ireland but also upon the offspring born elsewhere of Irish parents. Curiously enough, too, the same statement appears to be true of insanity, and there is perhaps some peculiar affinity between the two diseases.

The Tuberculosis Prevention (Ireland) Bill recently introduced by Mr. BIRRELL is an interesting measure and amongst its numerous provisions is one which provides for what

appears to be a modified system of compulsory notification of the disease. The results of this step in increasing or decreasing tuberculosis will be closely watched by everyone concerned with the administrative control of tuberculosis. Its relative success or failure depends upon the skill and caution with which it is administered. There is no doubt in the minds of those who have carefully studied the tuberculosis problem that the essential factor in administrative action with reference to existing cases is the early, very early, detection of the disease. It is early cases which, generally speaking, are alone capable of arrest and it is the arrest of such cases which prevents the prevalence of the advanced cases. So far as we are aware no system of compulsory notification yet devised has succeeded in securing the notification of early cases, and certainly failure rather than success will attend the Irish efforts if any attempt to create what may be termed a "leper" class is made. If this is likely to be the result of compulsory notification it will be better that the House of Commons should delete the provision, or suppression of cases will certainly ensue. In Sheffield and Bolton, the only two places in England where notification is compulsory, the compulsion is nominal, and no attempts are, we believe, made to prosecute those who do not notify at all, or notify only shortly before the death of the patient, when from a public health standpoint the information is valueless, seeing that it will shortly be available through the death certificate. We gather, however, from Mr. BIRRELL'S answer to one of his critics in the House of Commons that administration in this particular is to be "lax" in character, until, that is to say, the people have learnt that they are not to be forcibly separated from their relatives until they either recover or die, and that they are not to be compelled to relinquish their occupation or to wear labels. Probably a certain form of moral suasion will be exercised by making admission into the local sanatorium or hospital or the receipt of food—a very potent element in the battle—dependent upon notification. The anti-tuberculosis dispensaries which it is proposed to establish should prove useful.

The provisions of this Bill if they become law must not divert the attention of the Irish people from the conditions which give rise to tuberculosis, and greater endeavours must be made to seek out and to destroy what may be termed the breeding places of the disease. We are afraid that otherwise ten years hence the people of Ireland may be grievously disappointed with the results of compulsory notification and sanatoriums, and we should be very sorry to see this. It is difficult, as the charts in Dr. H. T. BULSTRODE'S sanatorium report show, to make much impression upon the death-rate curves of pulmonary tuberculosis in places in which notification and sanatoriums are provided, and therefore the Irish people must not be discouraged if for many years their tuberculosis death-rate does not decline. Perhaps the shortest way to affect the death-rate in Ireland would be by appropriate social measures to lower the curve of total pauperism, with which the curve of tuberculosis in Ireland shows a general parallelism. But those persons who have visited Ireland and have seen the slums of Dublin and the condition of the cottages in the rural districts, and have seen, too, the Irish cowsheds, the handling of milk and the making of butter, must feel that until these conditions are improved the anti-tuberculosis campaign in Ireland may be a very uphill and disheartening fight. In all the circumstances we are glad that further consideration of the Bill is to be postponed until the autumn, and in the meantime we trust that both the supporters and the opponents of its provisions will study the literature of tuberculosis. More especially, as regards the influence of the tuberculous milk of cows, would we commend to their notice the excellent Cavendish lecture on the Etiology of Pulmonary Tuberculosis delivered recently by Sir WILLIAM WHITLA and published in our issue of July 18th. They should also consider the history of "leper" legislation as applied to tuberculosis in Scotland, where they will find that an endeavour was here made to render the tuberculous subject practically an outcast, but that the good sense of the Scottish people practically demanded the withdrawal of the penalising clauses. On the other hand, the good results which have been obtained by the helpful system inaugurated by Dr. A. NEWSHOLME at Brighton must be borne in mind. The framers of the Irish Bill have already had regard to the history of tuberculosis legislation in Scotland, as is shown by the more statesmanlike character of the Irish measure, but seeing the social and administrative difficulties with which the subject bristles we welcome the opportunity for further deliberation.

Annotations.

"Ne quid nimis."

THE ROYAL COMMISSION ON WHISKY.

THE members of the Royal Commission on Whisky have considered it expedient at the present stage of their inquiry to issue an interim report. They have declared that in their opinion "no restrictions should be placed upon the processes of, or apparatus used in, the distillation of any spirit to which the term 'whisky' may be applied as a trade description." Further, they consider that "the term 'whisky' having been recognised in the past as applicable to a potable spirit manufactured from (1) malt or (2) malt and unmalted barley or other cereals, the application of the term whisky should not be denied to the product manufactured from such materials." Nothing could be more definite than these conclusions. They mean that the old and original meaning of the word "whisky" is lost and that now it may be applied to any spirit whether it is produced in the pot or the patent still and whether from malted barley entirely or from a mixture of malt and unmalted grain or even other cereals. The interim report recommends, in a word, that the term "whisky" should have a generic meaning and apply to all classes of spirit produced in the several ways just indicated. In many quarters this pronouncement has been regarded as a triumph, at any rate for the present, for the patent still. We do not think that it can be so regarded, for in the report the Commissioners admit, for one thing, that their labours are by no means terminated and, for another, that they "reserve for further consideration the question of the advisability or otherwise of attaching special significance to particular designations such as 'Scotch Whisky,' 'Irish Whisky,' 'Grain Whisky,' and 'Malt Whisky'; of placing restrictions upon the use of such designations as trade descriptions; or of requiring such designations to be used in connexion with the sale of whisky." Important as is their decision in regard to the use of the word "whisky" in a generic

sense, we may safely anticipate, we think, that still more important conclusions will follow the consideration of the reserved questions. Under the plea that patent-still spirit was better for the health of the whisky drinker the trade, or a section of it, has supplied him with a spirit, or blended spirit, which cost the distiller much less to produce than does a spirit made entirely from malt and in the pot still. The introduction of a cheaply produced spirit entirely accounts, in fact, for the infliction of the question of "What is whisky?" upon our time and attention. The trade has developed to such a large extent upon these lines that a Royal Commission has found it unreasonable to withhold from the adherents of the patent still and unmalted grain the right to the use of the word "whisky." We do not complain of this concession if we can be assured that later it will be insisted that there shall be a distinctive label and that the words Scotch whisky or Irish whisky, malt whisky, and so forth shall have the meaning which these respective terms so obviously imply. It is in this direction we think that the public needs protection the most, and we feel confident that the Royal Commissioners have made up their minds to give this aspect of the question their most careful consideration, having regard to the interests first of the community at large and then of the industry.

CORPSE MEDICINES.

Nicasius Le Febure, F.R.S., who describes himself as Royal Professor in Chymistry to His Majesty of England (Charles II.), has left on record in his work, "A Compleat Body of Chymistry" (1670), some very curious directions as to the preparation of medicines from mummies and corpses. There are four kinds of mummy medicines, he tells us, the most valuable being derived from "bodies, dryed up in the hot sands of Lybia," where whole caravans are frequently overwhelmed by simoons and suffocated. "This sudden suffocation doth concentrate the spirits in all the parts, by reason of the fear and sudden surprisal, which seizes on travellers." In order to obtain a drug not inferior to this variety "take some young lusty man's body, of about 25 or 30 years of age, dead by suffocation or hanging, and dissect the muscles without loss of their common membrane, and being thus separated, dip in sp. of wine, and suspend in a place where the air may be dry and pass freely to and fro." In wet weather the muscles must be hung in a chimney over a small fire of juniper "until they become as dry and well seasoned as the powdered beef which mariners use for their long sea-voyages. Thus you will have a mummy not inferiour to that of the fourth kind before described." Braised in a mortar and "digested," *in fimo* or otherwise, "during a philosophical month," the powder of this fifth or Paracelsian mummy, when mixed with spirits of wine, "old triacle," powder of viper's flesh, and so forth, becomes a most efficacious balsam. "It is an excellent internal remedy against all venemous diseases, but particularly against pestilential." The "dosis," according to Le Febure, is from one to three grains in broths or tincture of sassafras. Used externally it was held to be most efficacious against bruises and all kinds of pains and it was especially to be applied to palsied limbs. Human fat might also be used against the same diseases and required no particular preparation.

UNCERTIFIED CAUSES OF DEATH IN IRELAND.

AMONG the defects of public health organisation and administration in Ireland the excessive proportion of uncertified causes of death calls for special attention. The quarterly return issued by the Registrar-General for Ireland relating to the first quarter of this year shows that the causes of 6091 of the 23,353 deaths registered during the three months ending with March were not certified either by a registered medical practitioner or by a coroner. Thus the proportion of uncertified causes was equal to 26·1 per cent. of the deaths registered in Ireland, whereas in England and Wales during the same period the proportion of uncertified causes did not exceed 1·6 per cent. of the registered deaths. This excess of uncertified causes of death in Ireland is also well marked in the returns for its principal urban population. It appears from the Registrar-General's annual summary of the weekly returns relating to Dublin and 21 of the principal urban districts of Ireland during last year that the causes of 971 of the 23,564 deaths registered were uncertified, equal to 4·1 per cent., whereas the proportion of uncertified causes during last year in the 76 large English towns, for which the Registrar-General issues weekly returns, did not exceed 0·9 per cent. In Dublin registration area the proportion of uncertified causes of death last year was equal to 3·2 per cent., whereas in London it did not exceed 0·1 per cent. In the 21 Irish urban districts, the enumerated population of which ranged from 370,163 in Belfast to 7588 in Armagh, the mean proportion of uncertified causes of death was equal to 4·7 per cent. The largest proportions of uncertified causes in these Irish towns were 12·0 per cent. in Wexford and in Ballymena, 13·0 in Limerick, 17·0 in Clonmel, 22·3 in Galway, and 24·4 per cent. in Sligo. It may be noted that the highest percentages of uncertified causes of death during last year in the 76 English towns were 4·4 in Gateshead, 4·5 in Warrington, and 5·1 in South Shields. The marked deficiency of death certification in Ireland probably implies the neglect to provide medical attendance during the last illness of the deceased, but from whatever cause it may arise the subject is one calling for investigation. It may probably be due to a great extent in rural districts to sparseness of population and to practical difficulty in obtaining medical attendance, but this difficulty can scarcely exist in the 21 urban districts referred to above, and it seems reasonable to suggest the probability of a definite relation between the excess of mortality in these Irish town districts, to which we have recently called attention, and the frequent neglect to provide medical attendance indicated by the high proportion of uncertified causes of death.

MEDICAL TEXTS IN GREEK AND LATIN PAPYRI.

THERE are numerous references to medical matters, as well as frequently found fragments of ancient medical works, being recovered among the hundreds of papyri annually discovered in Egypt, which, although of small importance individually, if taken collectively as their quantity augments, deserve to be considered because of their information concerning medicine in antiquity. A short time ago Herr Kalbfleisch summarised the papyri of this description stored in London and Berlin in a treatise entitled "Papyri Græcæ Musei Britannici et Berolinensis." This work has since been commented upon by Professor Wesseley who had gained much experience in deciphering such manuscripts during his work upon the Rainier papyri at Vienna, and as the science of papyrology is so novel he was able to emend many of Herr Kalbfleisch's readings. The celebrated codex of the "Iatrica" of Menon, a medical compendium of about the Aristotelian era, first edited by Kenyon and Diels, was added to by some further fragments of the manuscript which were acquired by the British Museum. These new portions were as far as possible restored to their proper positions in the text in an article by Herr Diels in the proceedings of the Royal Prussian Academy. The special journal devoted to the study of papyri, the *Archiv für Papyrusforschung*, in its second yearly volume describes a papyrus at Geneva treating upon surgery. It is a sort of medical students' catechism, the text containing

questions and answers upon surgical operations. About a score of lines are preserved but they are so broken and unintelligible as to render scarcely any continuous sense. Several of the words used are new and they appear to be connected with σπληνία, or compression, and are such as διαρραφή, ὑποέταχρας, and ἀποδορα. A search among Greek medical authors may result in finding that they are therein but have been misread by modern editors. Bailly in his dictionary quotes Paulus Ægineta for ἀποδορα. Several references to medical affairs in the Oxford Oxyrhynchus papyri have been edited by Signor Olivieri in the "Bulletino Filologia Classica" for 1902. The chief of these concern the Emperor Hadrian's prohibition of the practice of circumcision. On this point three papyri at Berlin and a fourth at Strasburg show that exceptions must have been made in the case of offspring of Egyptian priests, these documents proving that if such a person desired his boy to be circumcised he could obtain a letter from an official certifying to the strategos of the district that both the child's parents were of true priestly families. The youth had to be unblemished and examined to assure this, so that he was fit for priestly office when he came to mature years. The largest of the three Berlin papyri bears three columns of writing and gives the legal certificate of permission for circumcision, stating that the necessary qualifications had been certified for on all points. Mr. F. G. Kenyon of the British Museum, in editing a papyrus containing a rescript of Marcus Aurelius, says that upon the recto of the manuscript it bears a composition of a medical character. This is fragmentary and only partly legible and most difficult to read. It commences with a description of the human body and then proceeds to discuss πνεῦμα, τροφή, and ἀποφορά. The most recent author whom it cites is Alexander Philalethes who lived in the first century B.C. Galen is not mentioned and Mr. Kenyon assigns the treatise to the first century of our era. In 1901 Herr Wellmann published a number of extracts from classic medical authors of Sicily, chiefly Akron, Philistion, and Diocles of Karystos, in a book entitled "Die Fragment-Sammlung der Griechischen Aertze." Herr Kalbfleisch, who has previously been referred to, is especially devoting himself to the study of these medical papyri. He has published those at Strasburg in his "Papyri Argentoratensis Græcæ." One of these documents of the second century of our era is a treatise upon maladies of the eyes, their origin and remedies, and the latter should be compared with the collyria recommended upon the oculist seals. The second manuscript which he treats of is of about the same date and is papyrus **No. 1** of the Strasburg collection. It preserves five columns of a treatise upon fevers. The author, or compiler, should be later than Celsus and may perhaps be Agathimes of Lacedæmon. Professor Goodspeed of the United States edits in the *American Journal of Philology*, 1903, a fragmentary medical work on a papyrus from Kôm Ushim in the Fayoum. He gives the short text preserved and a commentary. From the style of handwriting it should date from the third century but may be copied from older times. The Berlin papyri edited by Herr Kalbfleisch have been further studied by Herr Cronert who is famous for his work upon the half-burnt manuscripts from Herculaneum. He is specially interested in the medical vocabulary, and so entitles his monograph "Die Sprache der Griechischen Aertze." One of the works, a piece of which is preserved, is probably by Asclepiades and concerns excretions. It is in sufficiently good condition to afford an excellent phototype. The second Berlin papyrus is in much worse order but it gives three letters of Hippocrates. Herr Cronert also comments upon the British Museum medical papyrus which he attributes to Heliodorus. Whoever the author may be, he describes four methods of reducing a dislocated jaw, probably necessitated by the results of the ancient boxing matches. Further information as to recent progress in research upon classic medical authors in papyri may be found in the *Archiv für Papyrusforschung* in an article by Herr A. Backstrom, "Fragment einer Medizinischen Schrift," and in one by Herr Ilberg, "Aus der Antiken Medizin," in the "Year Book for Classical Studies (in German)" for 1904, and as regards new manuscripts of such works in G. Schmidt's "De Anonymi Laurembergiani Introductione Anatomica."

MEDICAL EDUCATION IN EDINBURGH.

A MEDICAL correspondent has called our attention to the state of unrest which has existed in the Edinburgh medical school for some time, and which, he says, has recently reached a crisis, threatening the existence of the extra-mural school. His communication is as follows: "Some years ago the advantage of attendance on the extra-mural lectures was urged with success on the University Court and it was arranged that all the lectures except eight could be taken outside the University. This privilege is still in force, but it is a well-recognised fact that owing to many causes, including the payment of fees by the Carnegie Trust, extra-mural lecturers and examiners engaging in commercial undertakings, medical and otherwise, and conducting coaching classes, the school has lost its educational value to a great extent, which has been still further decreased by the closing of the medical school for women in Surgeons'-square; the fact that the anatomical department in the new school has become a part of the University; and now by the closing of Minto House. There were formerly five extra-mural lecturers in anatomy; there is now only one. Other classes in the new school have been amalgamated and those in Minto House have been given up. In the latter part of last year it was proposed to sell Minto House, but the Scottish Association for the Medical Education of Women made no attempt to purchase the premises, which were ultimately sold for £8000 to a coöperative society, and classes must cease there in November. Application has recently been made to the University to provide for the education of women within its walls, but the University Court says that it is impossible to make the necessary arrangements and points out that no attempt has been made by the Women's Association to retain the old premises or to obtain new ones. Recently meetings of the women students and others have been held to protest against the action of the University Court. The summer session has now come to an end and no provision has been made for teaching students next winter. The donations and subscriptions to maintain the Women's College amount to £23 a year, and the Carnegie trust gives the matriculation fees and £100 to an assistant in physiology. The chief revenue is from students' fees, from which the lecturers receive an annual grant of from £2000 to £3000 a year." Our correspondent urges that it is very desirable, in the interests of the University of Edinburgh itself and of medical education in general, that steps should at once be taken to place the extra-mural school in the position of eminence which it occupied some years ago, believing that if this is not done grave injury must result to all students who take their medical education in Edinburgh.

THE METROPOLITAN WATER-SUPPLY.

WE have received the official reports upon the condition of the metropolitan water-supply during the months of February and March. As usual, these documents afford a mine of elaborate tabular information of great interest to the expert. We are not sure that they would not fulfil a more useful purpose if they could be published more promptly, even at the cost of certain details, so that any danger signal might be taken note of by the public

health authorities. The reports before us show that in February, with a rainfall of only 1·15 inches, the Thames water was in good condition throughout the month, whilst during the second and last weeks of March it was coloured and turbid as a result of the 3·23 inches of rain which fell in that month. The organic matter found in the filtered Thames supplies was less than had been found in January, and the New River and Eastern district supplies, which were of good quality in February, showed twice as much organic impurity in March as was the case in the preceding month, the March figures being—organic carbon 0·165 and 0·203 part per 100,000, and organic nitrogen 0·012 and 0·017 part per 100,000 for those respective districts. These results were better than were obtained for the best Thames-derived water—that from the Grand Junction Works at Hampton, which contained 0·180 and 0·018 part per 100,000 of organic carbon and nitrogen. The worst Thames supply, chemically speaking, was the East London (Kempton Park), which contained 0·265 (the report states 265) and 0·027 part per 100,000 of these respective impurities. The unfiltered water from the Kent chalk wells proved, as always, to be the purest supply, the organic carbon and nitrogen proportions being only 0·050 and 0·004 per 100,000. In February bacillus coli was found in 0·8 per cent. of one cubic centimetre samples of all waters as supplied, and in 24·9 per cent. of 100 cubic centimetre samples of Thames filtered water. In March these percentages were improved, being 0·3 and 10·5 respectively. They prove, however, that even in good months this harbinger of sewage contamination is always with us. The daily average supplies were 197 and 192 gallons for the respective months.

THE USE OF RÖMER'S ANTI-PNEUMOCOCCIC SERUM FOR PNEUMONIA IN CHILDREN.

WE have received a note from Dr. Crux of Wesel describing his results with Römer's anti-pneumococcic serum in the treatment of pneumonia in children. He regards it as of great value and in a paper published in the *Deutsche Medizinische Wochenschrift* of April 16th, of which his note is an abstract, he gives details of 12 cases in which he has employed it. The ages of the patients varied from nine months to 12 years and the serum was only given after the diagnosis of pneumonia was definitely established. Four of the children were given 10 cubic centimetres of the serum, one received 8 cubic centimetres, another 7·5 cubic centimetres, while to each of the remaining six only 5 cubic centimetres were administered. Dr. Crux claims that Römer's serum has a very favourable influence on the pneumonia of children and that it is quite harmless. He did not observe any serum rashes or any sign of nephritis in his cases. He states that after its administration there is a lasting fall of temperature which is "almost critical" in character and that the pulse is also favourably influenced. He recommends a further injection of from 2·5 to 5 cubic centimetres a day after the first if the temperature is not reduced by it. The serum should be injected with all aseptic precautions into the subcutaneous tissue of the buttocks. It is important that the state of the heart should be carefully examined before the injection and it is recommended that in young or weakly children a small injection of camphor dissolved in oil should be given. Römer's serum is a modification of the serum of Pane and is polyvalent. Both of these serums have been used by various observers, and although some have expressed themselves favourably as to their value the results on the whole have been disappointing in pneumonia, but in some cases of corneal ulceration Römer's serum appears to have given satisfactory results. Dr. Crux's cases are too few to draw any definite conclusions from, but so far as can be judged from his reports the duration of the febrile period was very short in his cases and the course very favourable. It is, however, not uncommon for lobar pneumonia to show a short febrile stage in children. Dr. Crux also claims that the serum is of value in cases of pneumonia other than pneumococcal, such as influenzal, but as no record is given of any bacteriological observations it is difficult to estimate the value of this statement.

THE FIRST STATUE OF QUEEN ALEXANDRA.

THE first statue of Queen Alexandra to be erected in this country was unveiled by Lord Crewe on July 10th in the garden of the London Hospital after he had officiated at the annual prize presentation to the students and nurses. In the course of his address he paid a graceful tribute to Her Majesty's practical sympathy with sorrow and suffering. The Hon. Sydney Holland spoke of the active interest which she has taken in the London Hospital, reminding his audience that she introduced Professor Finsen's light treatment of lupus into England by presenting the first lamp to the London Hospital eight years ago, since when 12 other lamps had been added and 1042 patients treated successfully. The statue, which is by Mr. G. E. Wade, is in bronze and has on its pedestal a relief tablet commemorating the visit of the King and Queen to the Finsen light department of the hospital. An inscription records that Her Majesty was President of the hospital in 1904 and the part which she took in the introduction of the Finsen light. The London Hospital may well feel a pride in this unique memorial.

THE LOCAL GOVERNMENT BOARD AND SCIENTIFIC RESEARCH.

THE President of the Local Government Board has authorised for the current year the following researches in connexion with the annual grant voted by Parliament in aid of scientific investigations concerning the causes and processes of disease: 1. A further inquiry by Dr. M. H. Gordon into the character of, and differential tests for, the micro-organisms found in the throats of patients suffering from scarlet fever. 2. An investigation of protracted and recurrent infection in diphtheria. This will be undertaken by Dr. Theodore Thomson, medical inspector of the Board, and Dr. C. J. Thomas, assistant medical officer, London County Council (Education Committee). The bacteriological part of the investigation will be undertaken by the Lister Institute. 3. An investigation of protracted and recurrent infection in enteric fever. This will be undertaken by Dr. Theodore Thomson, in conjunction with Dr. J. C. G. Ledingham of the Lister Institute. 4. Investigations by Dr. W. G. Savage into the presence of paratyphoid bacilli in man, the differentiation of streptococci in goats, and the bacteriological measurement of pollution of milk. 5. A statement of the results of the bacteriological examination of over 7000 samples of milk from different parts of the country made by Professor S. Delépine. 6. An investigation into flies as carriers of disease by Dr. S. Monckton Copeman, F.R.S., medical inspector of the Board, with the coöperation of Professor G. H. F. Nuttall, F.R.S. 7. An inquiry into the condition of flock beddings by Dr. R. A. Farrar, a medical officer of the Board. The bacteriology and biology of bedding (especially in relation to vermin) which will be undertaken in connexion with this inquiry will be superintended by Professor Nuttall. We welcome this inquiry because we have taken some pains[1] to show that in connexion with this subject a real evil exists. 8. A statistical inquiry into the social incidence of disease will also be begun, the prevalence of varicose veins and of hernia under different social conditions forming the first subject of inquiry under this head. This will be undertaken by Dr. J. Basil Cook.

[1] Vide THE LANCET, Sept. 7th, 1907, p. 727.

Announcements of further investigations for the current year will be made at a later date.

THE TUBERCULOSIS CONGRESS AND THE RUSH TO AMERICA.

IT is to be hoped that those who propose to attend the International Congress on Tuberculosis which will meet at Washington from Sept. 28th to Oct. 3rd have already secured their berths. The very notable increase in the cost of the journey has not brought about a decrease in the number of passengers who annually crowd the westward-bound steamers during the month of September. In consequence of the recent Atlantic Conference no line can make any reduction on its minimum rate and the rates have been considerably increased so far at least as the winter season is concerned. For the return journey there will be no difficulty. Very few Americans come to Europe for their pleasure in winter so that there is plenty of room on the steamers. There may be even more room now as the inducement of lower fares during the dull season is no longer offered, at least, not on the minimum rates. It is because the tourist season terminates in September that there is a great rush homewards on the part of the Americans who flock over annually to "do Europe." Calling round at the offices of the different companies the same reply was received from one and all. There were berths still vacant for some of the ships that sail in August and plenty of room in October; but, with only a very few exceptions, every berth was already booked for the early September sailings. First on the list stands the Cunard Company which has no less than four ships starting at dates suitable for members of the Congress. For those who wish to spend a few days at New York or elsewhere on the other side before the Congress or to attend the Exhibition on Tuberculosis which will begin at Washington on Sept. 21st, there is the huge, extremely steady and comfortable ship the *Caronia* that sails on Sept. 2nd; then on the 5th there is the record-breaking leviathan the *Lusitania*, while on the 12th her sister ship the *Mauretania* would also carry passengers over the Atlantic in plenty of time for the Washington Congress and exhibition. The best chance, however, of securing a place on these ships would at this late date depend on some passenger altering his plans and giving up his berth. There only remains the *Umbria* which is one of the smallest and oldest boats on the New York Line. She sails on Sept. 9th and at the commencement of this week there were still a few berths vacant. The White Star Line has the *Majestic* on Sept. 2nd, the *Oceanic* on the 9th, and the *Teutonic* on the 16th, sailing from Southampton and Cherbourg, while the *Celtic* leaves Liverpool on the 10th and the *Baltic* on the 17th, but it is very questionable whether a berth could be obtained on any of these ships. In regard to the great German lines, the *Deutschland* on Sept. 11th and the *Amerika* on the 18th of the Hamburg-Amerika Line may have one or two of their more expensive berths vacant, but their cheaper ships which take English passengers on board at Boulogne or Plymouth are all full. At the offices of the Norddeutscher Lloyd it was the same story. The *Kaiser Wilhelm der Grosse* on Sept. 9th and the *Kronprinzessin Cecilie* on the 16th had only one or two vacancies. Sailing from Havre on Sept. 12th and 19th respectively *La Savoie* and *La Provence* are naturally very full, for these, the ships of the French Transatlantic Line, are renowned for the excellence of their French *cuisine*. The ships of the American Line from Liverpool are full but there are still a few berths on its Southampton ships. There is not a berth vacant on the *Minneapolis* of the Atlantic Transport Line. On the nine-day boats of the Holland-America Line, the *Ryndam* on Sept. 12th and the *Potsdam* on the 19th, there may still be one or two berths, as also on the Red Star Line ship *Vaderland* from Dover on Sept. 19th, but this ship is not due at New York before Sept. 28th and the previous ship is already full except expensive rooms on the promenade deck. There are ships that sail directly for Boston from Liverpool but this is somewhat out of the way for Washington. It means more time and more money to be spent in railway travelling after landing; besides, the Boston ships are also very crowded. The Anchor Line has ships that go to New York, and as they start from Glasgow they may be sufficiently far from the usual tourist route not to feel so much the September homeward rush.

THE USE OF SILK LIGAMENTS IN INFANTILE PARALYSIS.

THE use of silk ligaments was introduced by Professor Lange of Munich and has now become a well-established procedure. He has shown that the silk causes the formation of a tough tissue which surrounds it and extends from its origin to its insertion. In other words, a strong natural tendon is produced throughout the length of the silk. This not only reinforces the silk but is sufficiently strong to take its place. In older methods of transplantation for paralysis transplanted muscles were inserted into paralysed tendons which in time stretched. In the *Boston Medical and Surgical Journal* of June 4th Dr. Robert Soutter has published an important paper on the use of silk ligaments. He points out that in a case of infantile paralysis when all possible gain has been derived from massage, electricity, and muscle training, and groups of muscles remain paralysed while others are strong, the resulting deformity and paralysis may be effectively treated by transplantation of muscles to take the place of those paralysed. The use of silk is advisable: 1. When the deformity is great or when the transplanted muscle cannot be expected to correct the deformity, though it will take up the new motion. 2. When so few muscles remain unparalysed that the transplanted muscle is not strong enough to correct the deformity. 3. When the paralysis is so extensive that transplantation cannot be done and the remaining muscles are thrown out of action by the deformity. In the last case the deformity may be corrected by silk ligatures and from half to all the function of the unparalysed muscles may be utilised. These cases were formerly treated by arthrodesis. 4. In some cases of total paralysis silk ligaments are useful; in others the best treatment is arthrodesis. The following are some examples. A child, aged nine years, had infantile paralysis of the left leg dating from the age of three. All the anterior muscles below the knee were paralysed and there was a flail ankle in the position of marked equino-valgus. Silk ligaments were inserted from the tibia to the scaphoid and the tibialis posticus was transplanted by means of silk to the internal cuneiform. 15 months later there were good correction of the valgus and good power of dorsal flexion. A girl, aged 11 years, had infantile paralysis dating from the age of two. In the right leg was marked equinus with relaxed ankle-joint, allowing the foot to turn in complete varus or valgus. Complete paralysis of all the muscles below the knee except those to the tendo Achillis was present. This required lengthening of the latter and silk ligament from the periosteum of the tibia to the scaphoid and to the cuboid. Nine months later the foot was in good position and there was no tendency to varus or valgus. A child, aged nine years, had infantile paralysis dating from the age of 11 months. The left foot was in marked equino-valgus and could not be raised or adducted. There was no power of flexion or extension of the toes. The peronei acted well. The peroneus longus was transplanted to the

internal cuneiform and a second strand was inserted to the cuboid by means of silk strands. Silk strands were attached to the periosteum of the tibia and inserted into the scaphoid to correct the pronation and abduction of the foot. Eight months later the foot was in good position and motion of the transplanted muscle was beginning. In the treatment of infantile paralysis Dr. Soutter insists on certain rules. All deformity can be prevented. No operation (except some simple one for deformity) should be undertaken until massage, electricity, and muscle training have been used for three or four years. In attaching silk ligament to the tibia the periosteum is slit longitudinally; No. 14 or 16 or 20 silk is quilted up the everted edge on one side and down the everted edge on the other. This gives a strong attachment. The everted edges of periosteum stretch, like other tissues, with the growth of the child. The double silk is then carried down and inserted well under the periosteum and superficial portion of the bone by means of a blunt, short curved needle. After the operation a plaster-of-Paris bandage is worn for from eight to ten weeks. Silk ligaments stiffen the ankle-joint sufficiently to prevent lateral motion but allow dorsal motion, so necessary in walking. Hence their advantage over arthrodesis.

FIRE ON A TUBE RAILWAY.

THE fire which occurred on the City and South London Tube Railway on July 16th last seems to us to bring once again into prominence the fact that the chief danger of underground electric traction arises out of the short path which the powerful electric current is prone to take, or short-circuiting. The public safety rests in fact on the completeness with which the preventive measure of insulation is carried out. In spite of the care which is taken to provide an insulated installation evidence is now and again forthcoming that the precautions occasionally break down. This may some day result in the sacrifice of human life either by panic or by actual disaster-dealing phenomena. We have frequently expressed apprehension in these columns as to the horrible consequences of electric leakage on the tube railways and the public have a right to expect that to avoid it every effort which it is humanly possible to take shall be taken. The great convenience of the tube railways is on all sides admitted, and it is only fair to add that the record of accidents is marvellously trivial considering how enormous is the traffic dealt with on the London tubes. In the incident referred to the greatest credit is due to officials and passengers alike who by their calm, unexcitable conduct averted consequences which might easily have been of a serious character. The result of the Board of Trade inquiry will be awaited with interest as determining what was the defect in the electrical machinery in this instance.

THE VALUE OF EUPHORBIA IN ASTHMA AND BRONCHIAL CATARRH.

IN *Nouveaux Remèdes* of June 24th Dr. M. Artault contributes an article on the value of euphorbia in the treatment of asthma and bronchial catarrh. Euphorbia pilulifera has been used to some extent in these conditions and in paroxysmal dyspnœa, laryngeal spasm, whooping-cough, angina pectoris, coryza, and hay fever. It appears to act directly on the respiratory and cardiac centres. Dr. Artault suggests that the relatively small popularity which this drug has enjoyed is due to the fact that it is not generally recognised in the pharmacopœias. He states that all species of euphorbia have a similar anti-asthmatic effect and that the most active is euphorbia peplus, or devil's milk. It is recommended in all cases of dyspnœa whether of pulmonary or pneumogastric origin. When given in asthma the secretions are modified and the attacks are rapidly suppressed. It exerts a reflex irritating action on certain branches of the pneumogastric nerve, especially in the naso-pharyngeal region. It has been said to have a hypnotic effect but Dr. Artault considers that the narcosis is indirect, the sleep following the administration of the drug being due to fatigue and therefore natural. The drug is administered in the form of extract, decoction, and tincture. The dose of the extract is 7½ to 30 grains during the day and of the tincture 30 to 60 minims. The decoction is made by boiling 45 grains of the dried, entire plant in one pint of water and making the volume of the finished product up to one pint. It is administered in doses of one teacupful three or four times a day, preferably between meals. In twice these doses the decoction produces irritation, vomiting, and other unpleasant symptoms. In cases where the administration of the proper dose of the decoction causes irritation in the throat it should be diluted with water until the acrid taste is suitably reduced.

THE MEDICAL INSURANCE AGENCY.

As a result of eight months' working of this agency the Medical Insurance Committee has received a satisfactory report from the secretary and agent. The work has been hard and as yet the returns are not large but a satisfactory start has been made and a profit secured from the beginning—mainly owing to the economy of management. The agency has now some 1650 insurers under the Employers' Liability Act. As separate policies are issued for any form of medical assistance outside domestic service the agency has sent out probably 3000 policies in all. Other insurances represent:—life, 10; personal accident, 18; burglary, 31; fire, 40; motors, fidelity, and other individual policies, 8.

LIQUID HELION.

THE telegram published in the *Times* of July 20th to the effect that Professor Onnes of Leyden had succeeded in obtaining a substantial quantity of liquid helion is of the greatest scientific interest. It appears that about 60 cubic centimetres of the liquid have been obtained, which must mean that Professor Onnes had a relatively large quantity of helion gas at his disposal for the purpose. It is remarkable that the boiling point of helion is $4 \cdot 3^{\circ}$ only above absolute zero, but no attempt to obtain the solid state seems to have succeeded even under high exhaustion and when reduced to a temperature within 3° of absolute zero. The question remains whether there exists another element with a boiling point nearer to the absolute zero than this. We referred to Professor Onnes's researches in a leading article in THE LANCET of March 14th, p. 798.

Dr. Adolf Meyer has been appointed director of the recently founded Henry Phipps department for the study and treatment of insanity at the Johns Hopkins Hospital, Baltimore, and professor of psychiatry at that University. He is a native of Switzerland and has been director of the Pathological Institute of the State Hospital of New York, at Wards Island, since 1902, and professor of psychiatry at Cornell University since 1904, and has made several contributions to the literature of psychological medicine. He has for long been an advocate of "psychopathic hospitals," such as the projected institution of which he will have charge and of which an account was published in THE LANCET of July 4th, p. 38. Dr. Meyer is to proceed to Europe with Mr. Atterbury, the chosen architect, to study the construction of similar institutions on the continent.

Dr. F. C. Gayton, who has for the last 25 years been senior assistant medical officer of the Surrey County Lunatic Asylum

at Brookwood, has been appointed medical superintendent of the new Surrey County Asylum at Netherne, near Coulsdon.

Mr. Arthur Lister, F.R.S., F.L.S., who died on Sunday last, July 19th, at the age of 78 years, was the younger brother of Lord Lister, and the author of important work in connexion with the Mycetozoa.

LATAH AND CRIME.

BY WILLIAM FLETCHER, M.B.CANTAB.,
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IN his article on latah[1] Sir Patrick Manson says: "Fortunately examples in which latah has been shown to play a part in crime are rare or unknown. It is conceivable, however, that under the influence of suggestion an affected person might be induced to kill or commit some other crime. In such circumstances it might be difficult to assess or to fix responsibility." Chiefly with the object of determining whether an individual who is subject to this condition can always be held responsible for all his actions the following inquiry has been made. The condition known as latah is confined to the inhabitants of the Malay Peninsula, Java, Sumatra, and the islands of their vicinity.

I have not heard of any cases amongst Malays who have been established in other countries for any number of generations. There is a large colony of Malays in Ceylon. I made inquiries amongst these people and have been informed that the disease does not occur there. Sir Allen Perry, the principal civil medical officer of Ceylon, has heard of no cases of latah in that country. In the Malay Peninsula the disease affects the Malays almost exclusively but is also seen in persons of other nationalities who have mixed with them for many years. This applies especially to Chinese born in the country. In addition to Chinese, Tamils, Europeans, and other immigrants may become affected. As Mr. J. D. Gimlette points out, many semi-civilised communities are subject to psychoses of a like nature—e.g., the Ikota of the Samoyeds and the Tigretier of Abyssinia. Latah varies from a mere nervous "jumpy" condition, in which reaction to a sensory stimulus suddenly and unexpectedly perceived is exaggerated in degree, to a reaction which is abnormal not only in degree but also in type and which may be produced by merely a word, look, or gesture. In the mildest form the subject may only scream when startled, or more often will give vent to some exclamation. Generally the exclamatory reaction is coördinated into a sentence, often abusive, which may not be of a stereotyped nature. For instance, a European resident of Selangor, regardless of place or circumstances, would regularly shout out, "Go to hell," if startled by an unexpected stimulus, tactile or auditory. Frequently, if the exciting stimulus be auditory, the sound will be imitated. Should a motorist sound his horn on passing a bullock-cart containing a party of Malay ladies it is not uncommon for him to elicit an answering "Toot-toot" from at least one of them. The subject of the severer form of this psychosis may, under the strain of excitement, became quite incapable of answering any questions, or, indeed, of doing anything except mimic his interrogator.

Mr. Fleming, the district officer of Tampin, tells me that when he has been holding court in some of the Pahang districts he has found it quite impossible to examine the witnesses as they could do nothing but imitate and repeat the questions put to them. "It was only," he says, "by removing them from the witness-box, allowing them to squat down beside my chair, and talking quietly to them that I was able to elicit their evidence."

In its gravest form latah resembles the third or somnambulistic stage of hypnotism. I have not, however, been able to discover that suggestions made during the somnambulistic condition are carried out in the normal or waking state. There are, moreover, important differences with regard to "volition" which will be dealt with later. If the unfortunate individual affected with this most pronounced type be suddenly startled he may pass into a condition in which he is constrained to obey every suggestion put to him and is absolutely at the mercy of anyone who chooses to employ him as food for amusement. At first there is but slight suppression of normal consciousness and in the subsequent waking state all events that took place will be remembered, though frequently as if they had happened in a dream (macham memimpi). Should the "séance" be long continued the normal consciousness is suppressed and on waking the subject is amnesic to the events of the latah state. This condition of advanced somnambulism is usually followed by a profound sleep (lena) of several hours' duration.

The passivity of the latah condition and the ready response to suggestion are well illustrated by a story from Swettenham's "Malay Sketches," instanced by Manson, where a Malay climbed a cocoanut tree in obedience to the suggestion of a friend and remained at the top thereof for six hours during the hottest part of the day because a second comrade had twisted a rattan round the base of the tree and told him that he could not descend because the rattan was a snake. Latah is very common amongst the Malays and it is almost the exception to find a woman over 45 years of age who is not more or less subject to this condition. The subjects of latah, apart from the occurrence of its manifestations, are in no way different from their fellows. They are not persons of weak mind and, indeed, may be of marked personality.

At Grit in Upper Perak Mr. Berkeley, the district officer, tells me that there is a latah policeman who possesses so dominant a personal influence over the Malays of the neighbourhood that it is only necessary for him when effecting an arrest to suggest to his prisoner that he is powerless to escape to render it impossible for him to do so. Its onset is common at the age of puberty, but a native doctor named Wan Chee tells me that he has seen children whose parents are subject to it become latah at the age of six. The manifestations in children are usually of a mild type. It may commence at any age and its determining causes are the same as those of other neurotic states—e.g., childbirth, trouble, the climacteric, &c. Once an individual has become the subject of latah he almost invariably remains so and tends to progress towards the graver form. This does not always happen. A—— is a chauffeur; on his left arm there is an old scar the history of which is as follows. He was sitting in the door of his house trimming a piece of wood with a large clasp-knife when a small lizard fell from the roof on to his leg. He was startled into a condition of latah and raising his knife he drove it home into the muscles of his forearm. He has now sufficiently recovered from his peculiarity to drive a motor car. I cannot, however, believe that he does so without abnormal risk. The condition is undoubtedly contagious by imitation and this has given rise amongst the Malays to the idea that it is infectious and hereditary. A——'s parents were latah, and he tells me the following story of his paternal grandparents who lived in Penang. One day his grandmother was startled by a large rat snake in the garden and was impelled by a latah impulse to seize it by the neck and hold on. Her husband hearing screams rushed out of the house, and finding his wife holding on to the neck of a big snake and unable to let go he was so startled that he too passed into a latah condition and in imitation of his wife caught hold of the snake by the tail. The rest of the family hearing the uproar came upon the scene just in time to see the old people pull the snake in half. Latah, as would be expected, is more common amongst women than men.

It is not looked upon as a disease by the Malays but as a personal peculiarity such as big feet, a long nose, or flopping ears, to be politely left unnoticed by acquaintances, and when occurring in people of position, but to be dwelt on and made use of as an instrument of castigation by near relatives, intimate friends, and enemies. The disease is not only confined to the uneducated. A short time ago I was talking with a Malay medical man on the subject. He is a man of more than average intelligence and has associated a good deal with Europeans. Whilst we were talking his wife, who was sitting at the other side of the table and listening to our conversation, suddenly struck the table and shouted, "What's the matter?" The doctor jumped, repeated her words, and then laughed sheepishly, ashamed to have betrayed himself.

The Malays themselves believe that "latah" is not confined to mankind but that sometimes animals are

[1] Clifford Allbutt's System of Medicine, vol. viii.

affected. Raja Alang Iskander of Perak tells me that long ago in an isolated house there lived a Malay with his wife and children. One night when the husband was absent at a distant village the woman went out of the house to draw a little water from the well. She did not return, and her children, too frightened to go out in search of her, were terrified by the roar of a tiger in the compound. At dawn the husband returned with some friends and a strange sight met their eyes. In the little brinjal patch at the back of the house the Malay woman and a large tiger were prowling round each other growling. Occasionally the tiger would make a little spring towards the woman and the woman would spring towards the tiger. Then she would jump back and the tiger would jump back too. Both the woman and the tiger were latah!

In being contagious by imitation latah resembles those epidemics of hysteria which sometimes take place "in small and predisposed societies such as schools, nunneries, remote and superstitious villages, and the phenomena are such as appeal strikingly to the imagination, such as religious ecstasies, strange forms of fits, saltatory spasms and laryngeal noises such as bellowings, barkings, or mewings."[2] As Manson points out these latter outbreaks occur in epidemics, whilst latah is an endemic psychosis. The former, he says, are diseases of the emotions, the latter of the intellectual reflexes. With regard to the somnambulistic stage of latah, "Janet considers somnambulism closely allied to hysteria and hysterical fits as virtually instances of somnambulism." It is especially in connexion with this somnambulistic stage of latah that the important question of volition arises.

With regard to volition in the hypnotic stage Dr. J. Milne Bramwell[3] says: "I have never seen a hypnotic suggestion carried out which involved anything opposed to the patient's prejudices, feelings, or moral sense. Bernheim and others base the possibility of hypnotic crime on the fact that hypnotic subjects will sometimes execute imaginary ones, e.g., put a lump of sugar into a friend's teacup when told it is arsenic; questioning in subsequent hypnosis, however, always reveals the fact that the subject knew exactly what he was doing and fully recognised the experimental nature of the transaction." In the somnambulism of latah this is certainly not the case. There is at the present time a Malay woman in the General Hospital, Kuala Lumpur, whom I have seen constrained by suggestion to run her fingers repeatedly through her hair, ruffle it up, and pull it over her face just after she had completed her toilet and carefully arranged her hair. Soon afterwards when the poor woman had "done" her hair again the suggestion was repeated with the same result. This was, I am sure, "opposed to the patient's prejudices and feelings." It is a well-known fact that latah folk will strip off their clothing at the suggestion conveyed in a gesture. This is strongly opposed to their feelings. No Malays, not even the men, will ever bathe naked.

Mr. Wilkinson, secretary to the Resident for the State of Perak, tells me of a case which is interesting from a forensic point of view with regard to crime committed owing to a latah impulse but without the involvement of a criminal suggestion. It occurred some years ago in Malacca. Two men, who may be called Kassim and Amat, were walking together through the jungle, each carrying his parang, or heavy chopping knife, when a dead twig, breaking off from a tree overhanging the path, fell to the ground. Kassim, being startled by its fall, in imitation thereof flung himself down on to the path. His companion, Amat, in his turn being startled by seeing his friend fall to the ground and overcome by the imitative impulse, threw himself down on the track by the side of Kassim and in so doing swung round his arm and parang. The heavy parang struck Kassim on the wrist and completely severed his hand from the arm. Amat was arrested, in due course appeared before the magistrate, and was sent to gaol for six months. Kassim, the injured man, stated that he felt sure that the affair was an accident; he had lived for years in the same kampong with Amat; they were both latah and he entirely accepted Amat's explanation. The court, however, probably felt that it was impossible to admit the excuse of latah. The disease is so common that were such a precedent created any Malay on his trial for a deed of violence would plead latah as an excuse. A similar case is that of a Sikh who was squatting down beneath a small bush by the side of a jungle path when a latah Malay happened to walk by. At the moment the latter was passing the Sikh rose up from the ground and his head appearing suddenly through the leaves of the bush so startled the Malay that he at once became latah, and thinking that the saw a wild beast before him split the head of the unfortunate Sikh with his parang. In both these cases grievous bodily hurt was inflicted owing to an uncontrolled impulse in a latah subject who had been startled by a sudden shock. The question now arises as to whether an individual who is latah will carry out a criminal action which is altogether due to the influence of a suggestion made by a second party and which would be repugnant to the individual when in a normal state. Most authorities on hypnotism deny the possibility of "hypnotic crime."

In order to investigate the question of "volition" with regard to crime in a person subject to pronounced latah the following experiment was carried out. A woman named J—— was admitted to the General Hospital, Kuala Lumpur, suffering from sarcoma of the breast. She was very latah and said that she had been so since the death of one of her children which had taken place rather suddenly a few years ago and was a great shock to her. J—— was in a small room with two other Malays. This room communicated by a short passage with a ward in which there was a large number of Tamil patients. She could not see the ward from her bed in the little room. On the particular day on which the experiment was carried out there was a drizzling rain, and, as is their custom in such weather, the Tamil patients were curled up on their beds entirely covered by their blankets. One of these patients was aroused and sent out into the verandah. The outline of the body was then reproduced under the blanket by means of a pillow and a folded raincoat. The appearance was indistinguishable from that presented by the real patients as hidden under their blankets in the beds near. J—— was then summoned from her room and told that there was a rich Tamil woman covered with jewellery asleep on one of the beds. The bed with the raincoat was then pointed out to her. Suddenly a large amputating knife was thrust into her hands and a command was shouted at her, "Kill that woman and steal her jewellery." J—— rushed at the bed and with great force drove the knife into the blanket and the raincoat underneath. Hardly had she struck before she uttered a cry of remorse and threw herself back with a look of horror on her face. The command "kill (potong)" was shouted at her and again she fell to hacking the raincoat with her knife.

Latah crime is certainly a possibility and may be either: (1) a criminal act resulting from an imperfectly controlled coördinate reaction to a sudden stimulus, as in the case of Amat and of the Malay and Sikh ("a disorder of the intellectual reflexes," as Manson points out); or (2) a criminal act resulting from suppression of volition in the somnambulistic form of latah, the determining cause of which act is a criminal suggestion made by a second party.

[2] J. A. Ormerod, Clifford Allbutt's System of Medicine, vol. viii.
[3] Encyclopædia Medica.

THE FIRST REPORT ON RESEARCH WORK BY THE DIRECTOR OF WATER EXAMINATIONS, METROPOLITAN WATER BOARD.

Dr. A. C. Houston has issued a report upon the vitality of the typhoid bacillus in artificially infected samples of raw Thames, Lea, and New River water, with special reference to the question of storage. The report is of great interest, as the 18 series of experiments carried out with unfiltered waters artificially infected with large numbers of typhoid bacilli, numbers much larger than can be imagined to occur in nature, prove that with no other treatment than simple storage an enormous reduction in the living bacilli occurs. "In practically all the experiments the reduction was over 99·9 per cent. Although from a public health point of view the actual number remaining may be of far greater importance than the percentage reduction, these results show the enormous advantage (in a relative sense, and assuming the possible presence of the typhoid bacillus)

obtained by storing raw river water even for a short time." The following typical results may be quoted from the table in which the experiments are summarised :—

Experiment number...	I.	VI.	VII.	IX.	XI.	XII.
Number of typhoid bacilli per cubic centimetre of infected water at start of experiments.	40	170,000	470,000	470,000	8,000,000	8,000,000
Number of typhoid bacilli one week later per cubic centimetre of water.	None.	40	480	1430	2,900	400
Percentage reduction.	100	99·9	99·9	99·7	99·9	99·9

In none of the 18 experiments could the bacillus be isolated from one cubic centimetre of water by the method employed after the lapse of five weeks, and in 10 experiments it could not be isolated three weeks after the infection of the water. Dr. Houston points out that it is undoubtedly possible by simple tests to show that under storage a "change" has occurred associated with relative, and perhaps even absolute, "safety" so far as the typhoid bacillus is concerned. Such a simple test is afforded by the disappearance of excremental bacteria which are constantly present in raw river water, for if these cannot be isolated the absence of living typhoid organisms may be safely assumed. Appendices to the report contain a description of the conditions and methods of the experiments, tables showing the results in detail, a note on "the necessarily artificial character of the experiments," and another on the older work of Professor E. O. Jordan, Professor H. L. Russell, and Professor F. R. Zeit on the longevity of the typhoid bacillus inclosed in permeable sacs of celloidin and parchment and placed in flowing river water. Dr. Houston summarises his conclusions under the following heads :—

(*a*) It is most desirable that the question of storage should be looked at from a general standpoint so as to render the length of time during which water is stored more uniform throughout the different districts; hence the policy of intercommunication already being applied to the filtered water should be extended to the stored water, as far as this is practicable.

(*b*) The advantages accruing from even a few days' storage may be so material that, exceptional cases apart, the use of *raw* unstored river water for filtration purposes should strongly be deprecated.

(*c*) Although as a counsel of perfection a water should possibly be stored for one to two months, storage for four weeks may perhaps, in the present state of our knowledge, be regarded as affording a sufficient margin of safety.

(*d*) It is possible to determine, with reasonable accuracy, whether the water being used for filtration purposes has been stored antecedently for such a length of time as to give relative (if not absolute) assurance that any harmful properties it may originally have possessed have been destroyed in the process of storage.

(*e*) It is not impossible that the additional "safety" conferred by *adequate* storage may come to be regarded as a reasonable pretext for filtration through mechanical filters, at specially rapid rates, thereby effecting considerable economies in the cost of filtration, as ordinarily practised; but any departure from old-established filtration-custom should not be entertained in the absence of convincing experimental proof of the reliability of the new process.

(*f*) The question of storage is one both of quality and quantity and, strictly speaking, the number of days it is *desirable* to store water to improve its *quality* should be added to the minimum number of days of storage which it is necessary to provide in guarding against the possibility of a shortage of water; nevertheless, during a considerable part of each year, there is an abundance of water of relatively good quality in the Thames and Lea, and the existing storage reservoirs are sufficiently large, *in the aggregate*, to improve enormously the water derived from these rivers.

(*g*) How far it is possible to unify the existing system of storage and to effect radical alterations in the present regulations governing the abstraction of water from the rivers in question are matters which may seem to lie outside the province of this report, but they have so large an influence on the provision of a uniformly safe and wholesome water-supply for London, at a reasonable cost, that it is necessary to mention them.

(*h*) The advantages accruing from adequate storage of water are of a general character and are not limited to the elimination of danger from typhoid fever.

THE Fourth International Congress of Thalasso-Therapeutics will be held at Abbazia from Sept. 28th to 30th. The subjects to be discussed include Indications and Contra-indications of Seaside Treatment of Chlorosis and Anæmia and of Diseases of Women; and Analyses and Climates of Different Seaside Resorts.

POOR-LAW MEDICAL OFFICERS' ASSOCIATION.

AT a meeting of the Poor-law Medical Officers' Association of England and Wales held at the Town-hall, Hull, on July 15th, Surgeon-General G. J. H. EVATT, C.B., A.M.S. (retired), the President, being in the chair, the following motions were carried :—

Proposed by Mr. W. HOLDER (Hull) and seconded by Dr. MAJOR GREENWOOD (London):

1. That in the opinion of this meeting the present system of remuneration of district medical officers in England and Wales urgently requires revision; that only by such revision can the present inadequate and inequitable salaries met with in many unions be redressed and a uniform scale be introduced by which Poor-law medical officers shall receive a remuneration in some measure commensurate with the duties they are called upon to perform.

2. That in the opinion of this meeting the scale of remuneration laid down in Art. 177 of the General Order of July, 1847, for special services is unsatisfactory; that the above scale was adopted more than half a century ago, since which time owing to the advances of medicine and surgery much more operative assistance has become necessary to meet the fair requirements of the sick poor.

3. That in the opinion of this meeting much unnecessary suffering is incurred by the sick poor owing to the difficulty often experienced in procuring a qualified anæsthetist in operative cases; that some special regulation in reference to such administrations should no longer be delayed, so that it should be within the power of Poor-law medical officers to obtain when necessary such assistance.

4. That in the opinion of this meeting every district medical officer when called upon in his official capacity to attend upon a lying-in case among the poor of his district should be guaranteed the fee laid down in the Poor-law Orders; that it should be the duty of the guardians to recover this fee from the husband of the patient where the circumstances of the latter do not warrant the expense thereby incurred being cast upon the ratepayers. They note with approval that this system has for some time been practically in operation in this city of Hull.

5. That in the opinion of this meeting the too frequent practice of some boards of guardians of utilising the emoluments of public vaccinators to supplement the inadequate remuneration of district medical officers is much to be condemned, as the post of public vaccinator is by law altogether distinct from any Poor-law office and should be treated as such; that the attention of the Local Government Board be specially directed to the recent action of the guardians of the Driffield union in determining their vaccination contract with Dr. A. T. Brand solely in consequence of his resignation of his office of district medical officer; that T. R. Ferens, Esq., M.P. for E. Hull, be requested to put a question to the President of the Local Government Board on the aforesaid matter.

VOYAGES D'ÉTUDES MÉDICALES.

ABOUT 80 members of the association of French medical practitioners known as the Voyages d'Études Médicales were on July 16th entertained at a complimentary banquet given at the Hotel Cecil in their honour by members of the medical profession in London, Dr. GEORGE OGILVIE being in the chair. After the toast of "The King" had been duly honoured the health of the President of the French Republic was drunk with enthusiasm.

The CHAIRMAN then proposed the toast of "Nos Invités." Speaking in French, he referred to the Franco-British Exhibition as a new proof of the firmness and sincerity of the bonds of friendship uniting the people of France to the people of England. His comments on the tercentenary fêtes in Quebec were greeted with loud cheers from the audience, which were renewed when he declared that "Personne n'a oublié que c'est à Québec que deux héros, un héros Français et un héros Anglais, Montcalm et Wolfe, reposent dans le même tombeau. Ils ont lutté tous deux sur le même champ de bataille, ils ont donné leur vie pour leur pays, maintenant ils dorment côte à côte de leur dernier sommeil, également honorés par la France et par l'Angleterre. S'il m'est permis d'exprimer un vœu, ce serait qu'on ajoutât sur le socle du monument qui leur a été élevé—La France et l'Angleterre unies pour le progrès et pour la paix." This toast was replied to by M. le Professeur A. PITRES who in an eloquent speech voiced the thanks of his compatriots for the splendid hospitality which had been accorded to them and for the generous sympathy with which they had been received.

The next toast was submitted by Dr. LEONARD P. MARK and was described on the programme as that of the "Entente Cordiale." Speaking in French, he remarked that the greater number of the visitors came from the most distant parts of France, from towns situated on the frontiers or on the coasts, many of them from the shores of the Mediterranean,

the land of the troubadours, bringing with them their animation and a reminder of the bright sun of Provence, of which the poet sings, "Dins li tèms de mal astre o li passage urous jamai oublliderai" ("In the times of bad luck or of happy moments I shall never forget"). He hoped they would all be able to take with them to the various parts of their charming country the impression that underneath what they called "la raideur Britannique" Britons were not so stiff and cold as was supposed but had a warm place in their hearts for their French neighbours. This toast was acknowledged by M. le Professeur L. FAURE, who described in flowing phrases the peace and concord that reigned between France and Great Britain.

Dr. J. DUNDAS GRANT, speaking in French, gave the toast of "The Ladies" which was acknowledged by Madame L. HELME. This lady's reply was in the form of a poem which mightily pleased her audience, and when she had finished with the words "Vive la noble Angleterre" the tremendous burst of applause from those present must have astonished her.

M. le Docteur F. HELME proposed the toast of "The Chairman" which was suitably aknowledged.

This party of French visitors arrived in London on July 12th and left on the 19th. The arrangements for their lodging and general entertainment during the week were intrusted to Dr. Leonard L. B. Williams, who succeeded so well in the discharge of this office that he must have felt somewhat embarrassed by the eulogistic references to his undoubted success. The French medical men paid visits to most of the great metropolitan hospitals, including the London, St. Bartholomew's, Guy's, University College, St. George's, St. Peter's, and the French Hospital. At Guy's Hospital they were received by Dr. G. Newton Pitt, Mr. W. Arbuthnot Lane, and Dr. A. F. Hertz. They were much interested in a group of patients collected for their inspection upon whom the operation of removal of the large bowel for chronic constipation and toxæmia had been performed by Mr. Lane. These patients were submitted to the closest scrutiny, and in each case a full history of the serious condition of the patient previously to operation was demanded. The visitors never seemed to tire of cross-questioning these patients as to whether they suffered from chronic diarrhœa after the operation, but in every case the patients were able to satisfy the French medical men that that result did not follow the operative interference. The healthy appearance of these patients and their evident satisfaction at being able to resume their work and to earn their living greatly impressed the visitors, who seemed especially attracted by a case in the private practice of Mr. Lane of a financier from the City who had kindly volunteered to show himself and who had led the life of an invalid for seven or eight years before operation restored him to health.

On the occasion of the visit of the French visitors to St. Bartholomew's Hospital they were received in the Great Hall by Dr. Norman Moore, the senior physician, and were then divided into two parties who in turn visited the buildings of the medical school, certain of the wards, and the new out-patient block. In the museum a special demonstration of historical or unique specimens was arranged by the pathologist, and in the wards the details of the medical and nursing arrangements were demonstrated.

Looking Back.

FROM

THE LANCET, *SATURDAY*, July 24th, 1830.

WE extract the following from *The Times* of Wednesday last:—

"During the progress of his late Majesty's illness, it was stated in a weekly publication, and the paragraph was copied into *The Times*, that Sir Matthew Tierney had, during several days, put his name to the bulletins, without having been seen or consulted by his Majesty. Since his Majesty's decease, we have received personal explanations of the facts, and we have now no hesitation in giving the most unqualified contradiction to such injurious statements."

Had the word "advertisement," which usually precedes paragraphs of this description in *The Times*, been appended, this contradiction would have been intelligible to every one; as it stands, however, we fear that it will be understood only by a few. The editor of *The Times* certainly could not have seen it before it was printed, and its insertion, without the proper title, must have been the result of a mistake. "Personal EXPLANATIONS?" Why, we stated in a manner the most direct and unqualified, that Sir MATTHEW TIERNEY had repeatedly signed the bulletins, without having been consulted by his late Majesty. What, therefore, does the writer of the paragraph in question mean, by "personal *explanations?*" If our allegation were untrue, let us have no "explanations," but a direct *contradiction* from some person of character and veracity who was in attendance upon his Majesty, and had ample opportunities of observing Sir MATTHEW TIERNEY'S movements. Had it been falsely stated that Sir Matthew was *dead*, would "personal *explanations*" have been necessary to prove that Sir Matthew was living?

LYNN THOMAS AND SKYRME FUND.

THE following subscriptions have been received between July 4th and 17th by Mr. William Sheen, M.S. Lond., F.R.C.S. Eng. (2, St. Andrew's-crescent, Cardiff), honorary secretary to the fund:—

Subscribers of Five Guineas.

Fife Branch of the British Medical Association, per R. Balfour Graham, Leven, Fife.
Otago Section of the British Medical Association, per E. H. Williams, Dunedin, New Zealand.

Subscribers of Two Pounds Seven Shillings.

Buxton Medical Society, some of the members, per G. H. Thompson.

Subscribers of Two Guineas.

Altrincham Division of the British Medical Association, per T. W. H. Garstang.
Leamington Medical Society, per J. Fenn Clark.

Subscribers of Two Pounds One Shilling and Sixpence.

Lancashire and Cheshire Branch, Bolton Division of the British Medical Association, per James Wood, subscribed as follows:—

One Guinea from—
C. Macfie, Bolton.

Half-a-Guinea from—
W. H. Brazil, Bolton.

Five Shillings from—
F. R. Mallet, Bolton.
James Wood, Bolton.

Subscribers of One Pound.
Bertram D'Olier, Arundel, Sussex.

Subscribers of Half-a-Guinea.

Charles Downing, Cardiff.
A. H. James, Blaenavon, Mon.
R. Llewellyn Williams, Penrhiwceiber.

Subscribers of Six Shillings.
Anonymous.

Subscribers of Five Shillings.

Oliver Gwatkin, Grange-over-Sands.
W. J. Middleton, Bournemouth.

Subscribers of Half-a-Crown.

R. Storey Brown, Bootle.
E. E. Cass, Carnforth.

SOCIETY FOR RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.

A QUARTERLY court of the directors of the above society was held on July 8th, Dr. G. F. BLANDFORD, the President, being in the chair. 21 directors were present. The deaths of five members of the society were reported and one new member was elected. £1230 were voted for the half-yearly grants to the annuitants of the charity—namely, 48 widows and 16 orphans. A letter of congratulation was sent to the senior vice-president, Sir Henry Pitman, on his reaching the great age of 100 years. Five letters had been received since the last court from widows of medical men asking for relief, but this had to be refused as their husbands had not been members of the society. Relief is only granted to the widows or orphans of deceased members. A grant at the rate of £50 per annum was voted to the widow of a member who was left with an income of £16 per annum. Membership is open to any registered medical practitioner who at the time of his election is resident within a 20 mile radius of Charing Cross. The subscription is two guineas a year, payable

either in one sum or in two half-yearly ones of one guinea each. Full particulars and application form for membership may be obtained on application to the secretary, 11, Chandos-street, Cavendish-square, London, W.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

BY desire of the Council of the Royal College of Surgeons of England, the following letter has been sent to Mr. Thomas Bryant, past president of the College, by the President and Vice-Presidents, on his attaining the age of 80 years:—

July 16th, 1908.

DEAR MR. BRYANT,—At their last meeting the Council of the Royal College of Surgeons were informed that you have quite recently attained the eightieth year of your life, and they desired through us to convey to you their sincere congratulations, in which, needless to say, we ourselves most cordially join.

It seems impossible to think of you as even nearly approaching this age, when we see you frequently, as we happily do, amongst us, in apparently perfect health, and in the exercise of your well-known vivacity of mind and alertness of body.

It is only when reviewing the long record of your past career in connection with Guy's Hospital and with this College that we are able to realise the fact that you have reached the age of 80.

Your very valuable services to Guy's Hospital and as a teacher of surgery in Guy's Hospital Medical School; the active share you have taken in the advancement of the art of surgery; your numerous writings on surgical subjects; the wisdom and energy you have shown as president of, and in various other official positions in connection with, most of the metropolitan medical societies, and as an examiner in surgery in the Universities of Cambridge, Durham, and Birmingham, come readily to the minds of all of us.

In this College we specially associate you with a long and honourable term of service as a member of the Council; with a full period of office as a member of the court of examiners, and of the board of examiners in dental surgery; also as the representative of this College for 13 years in the General Medical Council; as Hunterian orator, Hunterian professor of surgery and pathology, and as Bradshaw lecturer; and lastly, but by no means least, as President of the College during three consecutive years.

We delight to recall that your professional and public services, and your high personal reputation, have secured for you distinctive recognition in the form of honorary degrees and diplomas from other Universities and Colleges, and the appointments of Sergeant-Surgeon to H.M. the late Queen Victoria, and Surgeon-in-Ordinary to our present King.

It is our earnest hope that you may long be spared to enjoy in peace, and happiness, and good health the honours you have gained, the good wishes of your professional brethren, and the affection and regard of your numerous friends.

We are, yours very sincerely,

HENRY MORRIS, President.
W. WATSON CHEYNE, } Vice-
A. PEARCE GOULD, } Presidents.

Thomas Bryant, Esq., F.R.C.S.

MEDICINE AND THE LAW.

R. v. James Jefferson and the Defence of Insanity.

A CRIME which has been referred to in the newspapers as the Otley murder came before Mr. Justice Bigham at the Leeds assizes recently with a result which seems likely to attract attention. As a preliminary to the taking of the prisoner's plea two medical men, Dr. Samuel Edgerley and Mr. John Exley, were called in order to prove that the prisoner, James Jefferson, a labourer, 21 years of age, was not fit to plead. They deposed that he suffered from insane delusions which filled his mind and impaired his faculties so that his attention must wander during his trial as it could only be fixed by constantly addressing questions directly to him. In reply to questions by the judge they considered that he was able to understand what he was charged with and the effect of the pleas of guilty and not guilty. The judge told the jury that insane delusions did not render a man unfit to be tried and said that he would assign the prisoner counsel if he was tried, and that unless the prisoner, in their opinion, could not understand the proceedings against him he ought to be tried. Thus instructed the jury found the prisoner fit to plead and on being called upon to do so he pleaded "Guilty," but on Mr. Justice Bigham's suggestion he withdrew that plea, pleaded "Not guilty," and took his trial upon evidence which left nothing in issue except the question of his mental condition when he committed the crime for which he was indicted. The facts were remarkable and not irrelevant to the question of his sanity or insanity. Having been released after serving a term of imprisonment for three acts of arson, he was walking from Leeds to Otley when he must have met or overtaken his victim, a married woman, aged 31 years. A tradesman from Otley, driving along the road taken by the prisoner, saw him by the roadside bending over the naked corpse of the woman with a knife in his hand with which he had just severed the head from the trunk. On being addressed he looked up and then continued his task. He then got over a wall with the dead body, the arm of which he was trying to cut off, when assistance was procured and he was seized. Before he was taken he picked up the umbrella, stays, and hat of his victim and informed his captors that he was going to sell them, mentioning the price which he could obtain for each article. His observations to the police after he was arrested and at the police-station showed that he knew and could remember what he had done. The medical evidence given by the two gentlemen already named and by Mr. Ellison contained a full description of various delusions of the prisoner who believed that certain relatives wanted to murder him, that his brother was the late Charles Peace who would murder him; that his brother (then a convict at Portland) had looked in at the window of his cell in Leeds prison and threatened him; that he heard voices calling him a thief; and that the policeman who took him to prison had proposed to kill him on the ground that he would not feel it. Mr. Justice Bigham cross-examined the medical witnesses as to whether the prisoner "knew" that he was killing the woman and as to whether he "knew" that he was "doing wrong." Their answer to the first question was in the affirmative; to the second Dr. Edgerley replied to the effect that probably the prisoner had an idea that he was getting rid of a persecutor which would overpower his sense of the wrongness of his act, and Mr. Exley replied, "I think he knew he was doing wrong, but I think he had no idea how wrong." In summing up Mr. Justice Bigham told the jury that if the prisoner knew that he was doing wrong it did not matter that he did not know how wrong; that if he knew he was doing wrong, hallucinations and delusions did not matter; that a man in the condition of one commonly called a lunatic might be guilty of murder; that it was for the prisoner to satisfy them beyond all reasonable doubt of his own insanity; and that if he knew he was doing wrong it did not matter how insane he was, he should be found guilty. In these circumstances the jury, after a retirement of one and a half hours' duration, found the prisoner "Guilty," and he was sentenced to death. It will be gathered from the above, for which we have been indebted in the main to the *Times'* report, that the trial and its result were of a remarkable character, and it will be of interest to see in what form and by what procedure they will be reviewed, as no doubt they will be at some not distant date. There is now a court of criminal appeal and it will be seen to what extent a prisoner such as that described can initiate proceedings before it. It is hardly conceivable that the sentence upon Jefferson will be carried out, especially when it is remembered that the present Home Secretary respited the man who killed the late Mr. Whiteley. Among the names of those who have been found by juries "guilty but insane" will be recalled the name of Prince who killed the late Mr. Terriss, and it will appear to those who consider the matter that if the jury who under the guidance of Mr. Justice Bigham found Jefferson guilty of wilful murder at Leeds arrived at a right conclusion according to the law, wrong verdicts must have been returned in a very large number of instances in the

past. The case may bring forward the question of insanity and the commission of crime for fresh judicial interpretation, but if Mr. Justice Bigham stated the law correctly to the jury before him the application of it to the facts proved is hardly likely to commend itself.

The Manner in which Evidence is Given.

The case in which Sir William Richmond, R.A., obtained an injunction against the Crown Fire Lighter Company restraining them from continuing a nuisance caused by the noise of steam saws came before the Court of Appeal recently and the Royal Academician is to be congratulated upon the upholding of the decision in his favour given in the Chancery Division by Mr. Justice Neville. Incidentally the appeal which was heard at some length was the cause of interesting remarks from the court upon the weight to be attached to the manner of witnesses and upon the advantage enjoyed by the judge (and in other cases by the jury) at the trial in being able to see and to listen to the witness whose evidence can only be read before the Court of Appeal. The evidence before Mr. Justice Neville had been of a highly contradictory character, and Lord Justice Vaughan Williams said that had that of Sir William Richmond stood alone he might have considered that it was overborne by that on the other side. He saw, however, no reason to disturb the finding of the learned judge who had the witnesses of both parties before him and had been able to guide himself by their demeanour. In concurring in this judgment Lord Justice Buckley divided witnesses into four groups: the witness who was so afraid of overstating his case that he would hardly utter the evidence that he was there to give; the enthusiastic witness who overstated his case and whose testimony, unintentionally exaggerated, had to be discounted; the witness who without nervousness or embarrassment gave his evidence plainly and straightforwardly, so that those listening were convinced of his truthfulness; and the witness who desired to tell the truth, but not the whole truth, giving the impression that he was keeping something back. His lordship pointed out that none of these could be regarded as a false witness, but that the evidence of each had to be weighed according to his demeanour by the judge before whom he appeared in the witness-box. Obviously, Lord Justice Buckley was not referring to perjured or corrupt witnesses, but only to those who, being perfectly honest citizens, desire and deserve that all possible weight should attach to their testimony, and his classification of the evidence usually given by such gentlemen may usefully be studied by medical men and others liable to appear in the witness-box and desirous of acquitting themselves honourably therein.

The Rights of Insured Persons.

The possibility of a violent death through the negligence of some railway, omnibus, or steamship company is ever present to the minds of those who are active in the performance of their professional duties. Some are insured against accidents, and the accident policy usually provides for payment of a substantial sum in case of death; while nearly all who have persons dependent on them have taken out ordinary life policies. The Fatal Accident (Damages) Bill, which is now before the House of Commons, is therefore of interest to most members of the profession. The measure demands a few words of explanation. In former days, when a man was killed in an accident, his relatives had no right of action against the persons who caused the accident, the maxim being, "*Actio personalis moritur cum persona.*" This state of the law was altered by Lord Campbell's Act, in 1846, by which it was declared that where a person is killed in an accident the relatives can claim damages for the loss sustained if negligence be proved. The effect of this Act was greatly cut down by a decision of the courts, where it was held that the loss sustained must be calculated with reference to any insurances on the life of the deceased. In 1864, however, the Railway Passengers Assurance Company obtained an Act by which they are expressly exempted from this provision, while a few years ago the Ocean and General Accident Companies obtained similar Acts. The proposal in the Bill now before the House of Commons is to reverse the decision above referred to and to place all companies on an equal footing. Under the existing law, as was pointed out by one Member of the House, "the railway companies have the benefit of the providence of individuals." Moreover, the position of a man who is seriously injured is altogether different from that of his relatives if he is killed. If a man who is insured against accidents is run over by an omnibus he can recover damages from the omnibus company without bringing into account what he obtains by way of weekly compensation from the accident company. Should death supervene, however, his wife and children lose certain rights for which premiums may have been paid for a great number of years.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 8270 births and 3464 deaths were registered during the week ending July 18th. The annual rate of mortality in these towns, which had been equal to 11·8 and 11·4 per 1000 in the two preceding weeks, further declined to 11·1 per 1000 in the week under notice, and was lower than the rate recorded in any previous week of the year. During the first three weeks of the current quarter the death-rate in these towns averaged only 11·4 and in London did not exceed 10·7 per 1000. The lowest annual death-rates in the 76 towns during the week under notice were 3·2 in Devonport, 4·4 in East Ham, 4·6 in Handsworth (Staffs.), and 5·0 in Aston Manor; the highest rates were 16·1 in Oldham, 16·6 in Manchester and in Middlesbrough, and 19·9 in Bootle. The death-rate in London during the week did not exceed 10·4 per 1000, and was the lowest rate recorded in any week during the past 50 years. The 3464 deaths in the 76 towns showed a further decline of 90 from the low numbers returned in recent weeks, but included 351 which were referred to the principal epidemic diseases, against 296, 299, and 332 in the three preceding weeks; of these 351 deaths, 137 resulted from diarrhœa, 75 from measles, 65 from whooping-cough, 32 from diphtheria, 27 from scarlet fever, and 15 from "fever" (principally enteric), but not one from small-pox. The deaths from these epidemic diseases last week were equal to a mean annual rate of 1·1 per 1000, and corresponded with the rate in the previous week; in London also the rate from these diseases last week was 1·1 per 1000. No death from any of these epidemic diseases was registered last week in Plymouth, Huddersfield, Aston Manor, Devonport, Coventry, West Hartlepool, or in eight other smaller towns; the annual death-rate from these diseases ranged upwards, however, to 2·5 in Burnley and in Rotherham, 2·6 in Birkenhead and in Salford, 3·5 in Bury, and 4·6 in Bootle. The deaths attributed to diarrhœa in the 76 towns, which had increased in the five preceding weeks from 63 to 113, further rose to 137 in the week under notice, and caused death-rates equal to 1·4 in South Shields and in Merthyr Tydfil, 1·5 in Bootle, in Burnley, and in Middlesbrough, and 1·7 in Birkenhead. The 75 fatal cases of measles showed an increase of 13 over the number in the previous week, the highest death-rates from this disease being 1·6 in Walthamstow, 2·3 in Bootle, and 2·6 in Bury. The 66 deaths from whooping-cough, however, were 10 fewer than the number returned in the preceding week, the greatest rate of mortality from this cause being 1·3 in Salford. The fatal cases of diphtheria, which had been 40 and 37 in the two preceding weeks, further declined to 32 in the week under notice, and included 10 in London and its suburban districts, three in Birmingham, and three in Liverpool. The 27 fatal cases of scarlet fever and the 15 deaths referred to "fever" showed a slight decline from the numbers in the previous week; no exceptional mortality from scarlet fever was recorded in any of the towns but there were three deaths from enteric fever, equal to a rate of 1·3 per 1000, in Preston. The number of scarlet fever patients under treatment in the Metropolitan Asylums and London Fever Hospitals, which had been 2553, 2529, and 2597 at the end of the three preceding weeks, had declined again to 2573 on July 18th; the number of new cases of this disease admitted to these hospitals during the week under notice was 349, against 365, 322, and 437 in the three preceding weeks. The deaths in London referred to pneumonia and other diseases of the respiratory organs, which had been 120 and 106 in the two previous weeks, further declined to 104 in the week under notice, and were 25 below the corrected average number in the corresponding week of the five years 1903-07. The deaths

in London directly referred to influenza, which had been six in each of the two preceding weeks, were again six last week. The causes of 27, or 0·8 per cent., of the deaths registered in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in London, Liverpool, Leeds, West Ham, Bradford, Hull, Nottingham, Leicester, Salford, and in 52 other smaller towns; seven uncertified causes of death were, however, registered during the week in Birmingham, three in Sheffield and in Gateshead, and two in St. Helens and in Preston.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been equal to 14·5, 12·5, and 13·2 per 1000 in the three preceding weeks, declined again to 12·9 per 1000 in the week ending July 18th. During the first three weeks of the current quarter the annual death-rate in these eight towns averaged 12·9 per 1000, and exceeded by 1·5 the mean rate during the same period in the 76 large English towns. Among the eight Scotch towns the death-rates during the week under notice ranged from 9·9 in Leith and 10·4 in Perth, to 13·4 in Glasgow and 16·1 in Dundee. The 453 deaths in the eight towns showed a decrease of 12 from the number in the preceding week, and included 54 which were referred to the principal epidemic diseases, against 40, 41, and 59 in the three preceding weeks; of these 54 deaths, 26 resulted from diarrhœa, 19 from whooping-cough, five from "fever," two from measles, and two from diphtheria, but not one from small-pox or from scarlet fever. These 54 deaths were equal to an annual rate of 1·5 per 1000, the mean rate from the same diseases in the 76 English towns during the week being 1·1 per 1000. The deaths attributed to diarrhœa in the eight towns, which had been 11 and 29 in the two preceding weeks, declined again to 26 in the week under notice, and included 13 in Glasgow, five in Dundee, three in Aberdeen, and two in Edinburgh and in Leith. The fatal cases of whooping-cough, which had been 12, 13, and 17 in the three preceding weeks, further rose last week to 19, of which 12 occurred in Glasgow, four in Edinburgh, and two in Aberdeen. Of the five deaths referred to "fever" four were certified as cerebro-spinal meningitis and one as enteric fever; all of the five were registered in Glasgow. The two deaths from measles showed a further decline from recent weekly numbers. The deaths referred to diseases of the respiratory organs in the eight towns, which had been 68 and 51 in the two preceding weeks, rose again to 63 in the week under notice, but were nine fewer than the number in the preceding week. The causes of 12, or 2·6 per cent., of the deaths registered in the eight towns during the week were not stated or not certified; in the 76 English towns during the same week the proportion of uncertified causes of death did not exceed 0·8 per cent.

HEALTH OF DUBLIN.

The annual rate of mortality in Dublin, which had been equal to 17·7 and 20·0 per 1000 in the two preceding weeks, declined again to 18·4 per 1000 in the week ending July 18th. During the first three weeks of the current quarter the death-rate in Dublin averaged 18·7 per 1000; the mean rate during the same period did not exceed 10·7 in London and 11·7 in Edinburgh. The 139 deaths of Dublin residents registered during the week under notice showed a decline of 12 from the number returned in the previous week, and included 14 which were referred to the principal epidemic diseases, against 11 and 12 in the two preceding weeks. These 14 deaths were equal to an annual rate of 1·9 per 1000, the rate during the week from the same diseases being only 1·1 in London and 0·9 in Edinburgh. Of the 14 deaths from these epidemic diseases in Dublin, nine resulted from diarrhœa, three from measles, one from whooping-cough, and one from "fever," but not one from small-pox, from scarlet fever, or from diphtheria. The fatal cases of diarrhœa considerably exceeded the number in any previous week of the year, while those of measles were equal to the number in the preceding week. The 139 deaths from all causes during the week included 33 of children under one year of age and 36 of persons aged upwards of 60 years; the deaths both of infants and of elderly persons were slightly fewer than those recorded in the previous week. One inquest case and one death from violence were registered, and 52, or 37·4 per cent., of the deaths during the week occurred in public institutions. The causes of three, or 2·2 per cent., of the deaths were uncertified; the causes of all the 957 deaths registered in London last week were duly certified, while in Edinburgh the proportion of uncertified causes was equal to 2·5 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet-Surgeons: P. B. Handyside to the *Vernon;* G. A. Dreaper to Chatham Hospital; J. L. Smith to the *Nelson;* R. A. Fitch to the Royal Marine Artillery, Eastney; H. F. Iliewicz to the *Impregnable;* and B. F. Parish to the *Royal Arthur*, for the *Crescent.* Surgeons: G. M. Levick and E. M. W. Hearn to the *Victory*, additional, for course at Physical Training School; H. B. Hill to the *Euryalus;* P. L. Crosbie to the *Ocean;* W. N. Horsfall to the *Essex;* L. S. Whitwam to the *Vivid;* A. T. Gailleton to Chatham Hospital; and N. S. Meiklejohn to the *Victory*, additional, for disposal. Civil Dental Surgeon: L. A. B. Moore to the *Impregnable* (reappointed).

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel Henry J. Barnes, half-pay, is placed on retired pay (dated July 18th, 1908). Lieutenant-Colonel George D. Hunter, D.S.O., from the seconded list, to be Lieutenant-Colonel (dated July 5th, 1908). Lieutenant-Colonel Joseph Gibson retires on retired pay (dated July 15th, 1908). Lieutenant G. J. Keane has joined the London District.

Brevet Colonel C. E. Harrison (Grenadier Guards) has taken over the duties of Principal Medical Officer of the London District, vice Surgeon-General A. T. Sloggett, C.M.G. Lieutenant-Colonel G. D. Hunter, D.S.O., has vacated his appointment as Principal Medical Officer of the Egyptian army, and is posted to Aldershot as Medical Inspector of Recruits, vice Colonel H. H. Trevor.

TERRITORIAL FORCE.

Royal Army Medical Corps.

Lowland Mounted Brigade Field Ambulance: Captain Robert Taylor Halliday, from the Scottish Command, Glasgow Companies, Royal Army Medical Corps (Volunteers), to be Major (dated April 1st, 1908). The undermentioned officers, from the Scottish Command, Glasgow Companies, Royal Army Medical Corps (Volunteers), to be Captains, with precedence as in the Volunteer Force (dated April 1st, 1908): Captain Hugh Wright Thomson, Captain James Bruce, and Captain Robert Yuill Anderson. Surgeon-Captain Farquhar Gracie from the 1st Dumbartonshire Volunteer Rifle Corps, to be Captain, with precedence as in the Volunteer Force (dated April 1st, 1908). Lieutenant Robert Buchanan Carslaw, Transport Officer, from the Scottish Command, Glasgow Companies, Royal Army Medical Corps (Volunteers), is appointed Transport Officer, with the honorary rank of Lieutenant (dated April 1st, 1908).

1st Lowland Field Ambulance: Major William Francis Somerville, from the Scottish Command, Glasgow Companies, Royal Army Medical Corps (Volunteers), to be Lieutenant-Colonel (dated April 1st, 1908). The undermentioned officers from the Scottish Command, Glasgow Companies, Royal Army Medical Corps (Volunteers), to be Captains, with precedence as in the Volunteer Force (dated April 1st, 1908):—Captain George Henry Edington, Captain Archibald Young, Captain James Walker, and Captain William Bryce. Captain William Cochrane Murray, from the Argyll and Sutherland Bearer Company, Royal Army Medical Corps (Volunteers), to be Captain, with precedence as in the Volunteer Force (dated April 1st, 1908). Surgeon-Lieutenant John Wilson Leitch, from the 3rd Lanarkshire Volunteer Rifle Corps, to be Captain (dated April 1st, 1908). Lieutenant Archibald Jubb, from the Scottish Command, Glasgow Companies, Royal Army Medical Corps (Volunteers), to be Captain (dated April 1st, 1908). Lieutenant Brownlow Riddell, from the Argyll and

Sutherland Bearer Company, Royal Army Medical Corps (Volunteers), to be Captain (dated April 1st, 1908).

2nd Lowland Field Ambulance: Surgeon-Major Alexander Dryden Moffat, from the 3rd (The Blytheswood) Volunteer Battalion, The Highland Light Infantry, to be Lieutenant-Colonel (dated April 1st, 1908). Surgeon-Captain Peter Fleming Shaw, from the 1st Volunteer Battalion, The Highland Light Infantry, to be Captain, with precedence as in the Volunteer Force (dated April 1st, 1908). Surgeon-Captain John McKie, from the 5th (Glasgow Highland) Volunteer Battalion, The Highland Light Infantry, to be Captain, with precedence as in the Volunteer Force (dated April 1st, 1908). The undermentioned officers from the Scottish Command, Glasgow Companies, Royal Army Medical Corps (Volunteers), to be Captains, with precedence as in the Volunteer Force (dated April 1st, 1908):—Captain Matthew Dunning and Captain William Adam Burns. Lieutenant James Alexander Hamilton Aitken, from the Highland Light Infantry Bearer Company, Royal Army Medical Corps (Volunteers), to be Lieutenant, with precedence as in the Volunteer Force (dated April 1st, 1908). Lieutenant James King Patrick, from the Scottish Command, Glasgow Companies, Royal Army Medical Corps (Volunteers), to be Lieutenant, with precedence as in the Volunteer Force (dated April 1st, 1908). Lieutenant David Shannon, from the Scottish Command, Glasgow Companies, Royal Army Medical Corps (Volunteers), to be Lieutenant, with precedence as in the Volunteer Force (dated April 1st, 1908).

2nd Welsh Field Ambulance: Captain Alfred William Sheen, from the Welsh Bearer Company, Royal Army Medical Corps (Volunteers), to be Major (dated April 1st, 1908). Captain Evelyn John Robert Evatt from the Welsh Bearer Company, Royal Army Medical Corps (Volunteers), to be Captain, with precedence as in the Volunteer Force (dated April 1st, 1908). Surgeon-Captain Charles Richardson White, from the 3rd Volunteer Battalion, The Welsh Regiment, to be Captain, with precedence as in the Volunteer Force (dated April 1st, 1908). Lieutenant Henry Thomas Samuel, from the Welsh Bearer Company, Royal Army Medical Corps (Volunteers), to be Captain (dated April 1st, 1908). Athol Stewart Joseph Pearse to be Lieutenant (dated April 18th, 1908). George Morley Arundel Thomas to be Lieutenant (dated April 23rd, 1908).

3rd West Riding Field Ambulance: Surgeon-Major Thomas Stewart Adair, from the 1st (Sheffield) Yorkshire (West Riding) Royal Engineers (Volunteers), to be Lieutenant-Colonel (dated April 1st, 1908). Frederick Augustus Hadley (late Surgeon-Captain, 13th Battalion, Imperial Yeomanry) to be Captain (dated April 1st, 1908). John Wilfred Stokes to be Lieutenant (dated April 1st, 1908). Herbert George Murdoch Henry to be Lieutenant (dated April 1st, 1908). Ernest Frederick Finch to be Lieutenant (dated April 6th, 1908). Charles Graham Murray to be Lieutenant (dated April 10th, 1908). Edward Fretson Skinner to be Lieutenant (dated April 11th, 1908).

UNIVERSITY OF LIVERPOOL: MEDICAL APPOINTMENTS.—At a recent meeting of the Council Dr. John Hill Abram was elected to the professorship of therapeutics, which takes the place of the chair held for many years by Dr. William Carter. Professor Abram received his medical education at University College, Liverpool, and graduated at the University of London in 1888 with first-class honours in medicine. For some years he has been one of the physicians to the Liverpool Royal Infirmary and is lecturer on clinical medicine at the University of Liverpool.—Mr. Prosper H. Marsden, F.C.S., has been appointed lecturer in materia medica and pharmacy at the University. Mr. Marsden has since 1896 been connected with the teaching of these subjects as demonstrator and lecturer. The new appointment, which is for a term of five years, gives him a more clearly defined position on the teaching staff of the medical faculty. Mr. Marsden has contributed many valuable papers to the *Pharmaceutical Journal* and has for the last four years been a member of the board of examiners of the Pharmaceutical Society of England and Wales. Professor John E. Salvin-Moore has resigned the directorship of the Liverpool Cancer Research Committee and accordingly vacates the professorship of experimental cytology in the University of Liverpool on Sept. 30th next.

Correspondence.

"Audi alteram partem."

THE SOCIETY OF MEMBERS OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND AND THE ADMISSION OF WOMEN TO THE COLLEGE.

To the Editor of THE LANCET.

SIR,—It is generally known that this society took a poll of the Members on this and another question supplementary to that of the Council. The complete returns will not be published until after they have been submitted to the committee of this society. Meanwhile certain general facts may be stated: 1. The official poll is defective and incomplete, cards having been issued to only 13,812 Members. We sent 14,633 cards, and there are 17,544 Members' names in the last College Calendar. A minor advantage of the representation of Members will be that an accurate register will have to be kept. 2. The vast majority of those who desire the admission of women desire also that if admitted they should have "full collegiate rights" in the only way that these can be obtained—viz., by means of a new Charter. They did not state this in the official polling card on account of the warning notice thereon, but we have it in black and white on our cards. 3. In reply to our question regarding the direct representation of Members the poll is practically unanimous, only some 300 of the whole number of cards returned bearing a negative answer. Never again will the College Council be able to state that the Members generally do not desire this reform.

Faithfully yours,
W. G. DICKINSON } Honorary
A. S. MORTON } Secretaries.
July 20th, 1908.

THE TREATMENT OF DIPHTHERITIC PARALYSIS BY ANTITOXIN.

To the Editor of THE LANCET.

SIR,—The case recorded by Dr. G. S. Middleton in THE LANCET of July 18th, p. 156, has suggested to me the following considerations. The character of the initial angina is not stated, but presumably it was of some severity, since the patient was kept in bed for four weeks. Though, as a rule, there is a direct relation between the character of the initial attack and the severity of the subsequent paralysis, early resumption of work, as in the present case, even after mild angina, may, as I have pointed out elsewhere,[1] be followed by considerable paralysis and such a sequel is still more likely to occur after a severe angina. Since prevention is better than cure, one is naturally tempted to ask why antitoxin was not administered in the acute stage. Several observers, including myself,[2] have shown that the early use of antitoxin diminishes the risk of subsequent paralysis, especially of a severe character. Among 1500 cases of diphtheria which have been under my care in the course of the last six years there were 335 paralysis cases, but only three, or 4·9 per cent., all of which were mild, occurred among the 61 who were injected on the first day of disease. Among the 319 second-day cases there were 50 paralysis cases (15·6 per cent.), of which 13 were severe, and among 197 fifth-day cases 62 paralysis cases (31·4 per cent.), of which 32 were severe. As regards the treatment of diphtheritic paralysis by antitoxin I pointed out in a previous letter[3] that the value of the method was far from proven owing to the small number of cases in which it had been tried, not always, indeed, with success, the natural tendency of late diphtheritic paralysis to recover spontaneously, and that aggravated form of the serum disease that is liable to develop when antitoxin has been given for

[1] Practitioner, vol. ii., 1904, p. 607.
[2] Ibid., p. 614.
[3] THE LANCET, August 4th, 1906, p. 322.

the primary attack some weeks or months before (supersensitation phenomena). The last objection does not apply to Dr. Middleton's case as antitoxin was not administered for the primary attack. I would here emphasise the fact, which advocates of this method seem to have disregarded, that careful experiments on animals to which we owe the priceless remedy of antitoxin are far from confirming the alleged value of serotherapy in diphtheritic paralysis. De Stella[4] of Ghent in 1905 injected two batches of rabbits, each batch consisting of ten, with diphtheria toxin until various palsies resulted. One batch was then given antitoxin while the other was not injected. No difference was noted in the subsequent evolution of the palsies in the two batches and De Stella therefore concluded that antitoxin exercised no influence on diphtheritic paralysis. In experiments on guinea-pigs in whom diphtheritic paralysis is an almost exact counterpart of that occurring in man Rosenau and Anderson[5] found that a very small quantity of antitoxin given 24 hours before, or at the time of, infection prevented the development of paralysis and that antitoxin given 24 hours after infection modified the paralysis. On the other hand, they found that antitoxin administered during various stages of the paralysis had no power to save life or ameliorate the symptoms. Neither had antitoxin any influence in preventing paralysis if injected shortly before the paralysis developed. The failure of antitoxin in experimental paralysis depends partly, no doubt, as Rosenau and Anderson suggest, on the fact that experimental diphtheria produces an early and malignant form of paralysis which is uncommon in man. The difference between experimental and clinical results admits of a further explanation. It has occurred to me that any improvement in the paralysis that can be attributed to the injection of serum is due not so much to a specific as to a psychotherapeutical action which obviously does not come into play in the case of rabbits and guinea-pigs. In cases of severe diphtheritic paralysis of long duration the patient, especially if an adult, is liable to sink into a state of apathy and almost despair from the belief that his impotence is incurable. Is it not possible that the powerful suggestion conveyed by repeated injections of antitoxin may rouse the patient to coöperate in his recovery? It would be interesting, however, to determine whether equally good results would not be obtained by the injection of some comparatively inert fluid such as sterilised water. No harm could arise and the possibility of supersensitation phenomena would be avoided.

I am, Sir, yours faithfully,

Grove Fever Hospital, S.W., July 18th, 1908. J. D. ROLLESTON.

A CONSIDERATION OF THE STATE OF THE AUTONOMIC NERVOUS SYSTEM IN ACUTE SURGICAL CONDITIONS.

To the Editor of THE LANCET.

SIR,—I was very pleased to see Mr. A. J. Walton's paper, and more especially your leading article, on the treatment of surgical shock. It was in 1905 that in my Hunterian lectures I pointed out the fallacy of administering strychnine in the treatment of this condition. Crile's experiments had just been published and I had confirmed them by clinical observations and blood pressure records. Strychnine is still, however, extensively used to treat shock, in spite of the overwhelming clinical and experimental evidence that not only does it do no good but actually increases the degree of shock and delays recovery.

I believe the reason that this pernicious method of treating shock has died so slowly is that in slight cases of shock (and these predominate) an injection of strychnine is generally followed by a marked temporary improvement in the pulse. A surgeon unacquainted with the physiology of the condition argues that it has therefore done good. Though had he applied a hot iron to the patient's foot the effect would have been the same—namely, stimulation of the partly exhausted vaso-motor centres. It is always more difficult to kill an accepted form of treatment than to get a new one accepted, and in this respect strychnine as a means of treating shock is dying hard. Your leading article on the subject and Mr Walton's paper should, however, go far to assist its interment.

There are one or two points in Mr. Walton's paper which call for criticism. He refers to the experiments of Sherrington and Copeman as proving that the specific gravity of the blood is raised in shock. More recently, however, Mr. W. L. Symes and I have carried out a series of experiments on the same subject in which we were able to prove that the reverse is the case. The specific gravity of the blood falls with the blood pressure and the fall is proportionate to the fall in blood pressure. Sherrington and Copeman in their experiments were not dealing with shock at all, and the rise in specific gravity which they observed was due to the initial rise in blood pressure produced by their operative procedures. The specific gravity of the blood is lowered in shock due to a compensatory transudation of fluid from the tissues into the blood-vessels to make up the deficiency in the amount of circulating fluid. Our experiments were published in the *Journal of Physiology*, July 20th, 1907. I must also question Mr. Walton's conclusions with regard to the administration of adrenalin solution "per rectum." I tried this method clinically in 1904, using small rectal injections containing a relatively big dose of adrenalin, but without in a single instance observing any rise in the patient's blood pressure.

Since 1905 Mr. Symes and I have been carrying out a series of experiments with the object of finding if possible a reliable and easily applied method of treating shock and in the course of this investigation we have tried various methods of administering adrenalin. In no instance have we seen any rise of blood pressure, either in the shocked or unshocked animal, follow the introduction of adrenalin into the rectum or peritoneal cavity. In view of the fact that in carefully conducted experiments it is impossible to raise the blood pressure by the rectal administration of adrenalin we must, I think, conclude that the rise in blood pressure obtained by Mr. Walton was due entirely to the fluid introduced and not to the adrenalin. Adrenalin introduced under the skin or into the rectum loses its blood pressure raising properties long before it reaches the interior of the blood-vessels. Very occasionally a rise in blood pressure follows subcutaneous injection of adrenalin, but when this occurs it seems certain that it is due to the injury of some small vein. No rise follows even from enormous doses if care is taken to avoid such injury.

Mr. Symes and I have for the last two years been experimenting with a new drug which it is hoped will prove of considerable value in the treatment of shock, as not only does it raise the blood pressure but it also maintains it for a considerable time. The results of our researches are now in course of publication.

I am, Sir, yours faithfully,

July 11th, 1908. P. LOCKHART MUMMERY.

ON THE VALUE OF CHEESE AS A DIETETIC RESOURCE IN DIABETES MELLITUS.

To the Editor of THE LANCET.

SIR,—There is no disease in which the regulation of the diet is more important or the difficulty of satisfactorily doing so is greater than in diabetes. It used to be supposed that the sole object of this regulation was the exclusion of carbohydrates from the food of the diabetic, it being assumed that the glycæmic condition in which the disease consists is at least maintained, however it may have originated, by the supply of carbohydrates in the food. This is in the main true. The progress of pathological chemistry, however, has demonstrated that by some obscure process of perverted metabolic activity certainly the proteids, and probably also the fatty elements of the food, are capable of giving rise in the process of digestion, by the splitting up which they undergo under the influence of the pancreatic secretion, to bodies which are equivalent to glucosides in their action. It thus becomes necessary in prescribing a safe diet for the diabetic to estimate more carefully than has been hitherto done the relative values of the different forms of proteid food which are available for the purpose. The merits of meat, of eggs, and of various forms of vegetable albumin, as well as those of different forms of casein of a dry, pulverulent,

[4] Archives Internationales de Laryngologie, tome xxi., 1906, p. 336.
[5] Bulletin No. 33, U.S. Public Health and Hospital Marine Service, 1907.

and tasteless character, which have been put into the market under different fancy names, have been discussed by various writers. But, curiously enough, little attention has been given to a variety of proteid which would seem to have stronger claims to notice than any other, if only on the grounds that it is more readily available and much cheaper than any proprietary food. And irrespective of these two not unimportant recommendations, the facts that cheese has in every form a higher proteid value than meat or any other albuminoid foodstuff; that when appropriately prepared it can be brought to table in as great a variety of dishes and in as appetising shapes as meat; that when properly selected and eaten it is eminently digestible; and lastly, that it is comparatively free from the purin and acetone producing elements which characterise other forms of animal proteid, should give it a strong claim to consideration in the dietetic treatment of glycosuria. It is true that von Noorden asserts in his illuminating work on the pathology and treatment of diabetes mellitus that feeding with casein is associated with glycosuria in a marked degree; but he also makes, in the same work, the paradoxical statement that casein does not contain any carbohydrates that can be split off in the process of digestion.

However we may attempt to reconcile these apparently conflicting statements, it is highly probable that they are to be in some degree explained by an oversight of the fact that cheese is as varied in its characteristics as is meat, and that even one kind of cheese may vary so much during the changes it undergoes in ripening that what is easily digestible at one stage may become very indigestible at a later one. Moreover, the change which the volatile fatty acids in particular undergo in the ripening of most kinds of cheese, when considered in combination with the possibility, on which von Noorden himself lays much stress, that they may, under the influence of a special ferment, split up into glucosides, increases the perplexity of this problem. That the indigestibility of fully ripe cheeses of the larger types is mainly due to the rancid character which their fatty acids acquire is certain, though there are other elements of ripe cheese which may help in producing this result. It is obvious therefore that the question of what is the true value of cheese as an element of the diet in diabetes in comparison with egg albumin, meat, and various forms of vegetable proteid, from all of which it is claimed that glucose can be derived under favourable conditions in the digestive process, requires to be answered in a more satisfactory way than has been yet done. Such an answer to be of any real value must be of a practical character and can be only given by medical practitioners who, having cases of diabetes under their observation, can contribute important information on the subject. This they can do by the careful dietetic administration, in measured quantities and under the best control conditions which the circumstances of each case allow, of a form of cheese, specially selected for the purpose, and by the estimation of the effects of a diet composed of such cheese in suitable quantities and with proper accompaniments on the elimination of sugar in the urine, for a sufficient time to allow of a trustworthy inference being drawn from the experiment.

For the reason above stated the value of the information to be derived from this inquiry will depend on the uniformity of character and composition of the cheese selected for it. The cheese should be one which, while containing a fair amount of butter fat, is free from any degree of rancidity. Moreover, it is desirable in view of the distaste which the diabetic palate easily acquires for any long-continued diet in which the ordinary forms of carbohydrates are absent, that the cheese should be of a kind in which, whilst it has no marked flavour of its own, it should be capable of being made as appetising as possible, either by the incorporation with it of unobjectionable flavouring ingredients or by the development of the special aroma which all cheese acquires under effective culinary treatment. Any medical practitioner who has a case of diabetes under his observation and who will take the trouble of explaining to his patient the way in which the cheese should be consumed and who will determine its effects upon the variation of sugar in the urine and on the weight of his patient may make a valuable contribution to clearing up this obscure but important problem. The interest of this inquiry is the greater because, as von Noorden himself points out, the explosion of glycosuria, when it does occur in a shape in which its true character cannot be overlooked, is in many cases only the climax of a long-continued metabolic disturbance which is often unrecognised by patient or practitioner except as some general and obscure trouble of digestion. In such cases early dietetic treatment is of the first importance, and it is in them more especially that the judicious use of cheese, in regard to both quantity and quality, offers resources which no other foodstuff possesses.

I am, Sir, yours faithfully,

Gloucester, July 20th, 1908. FRANCIS T. BOND, M.D. Lond.

REMOVAL OF THE APPENDIX AFTER PERITYPHLITIC ABSCESS.

To the Editor of THE LANCET.

SIR,—I have read with interest Mr. W. H. Battle's paper in THE LANCET of July 11th. I entirely agree with him as to the importance of removing the appendix in all cases of appendicital abscess, the abscess being opened first and in a week or ten days afterwards the appendix is removed. This method I have adopted for the last 18 months, and I was led to do so owing to three cases where I had previously opened an abscess having had a recurrent attack from six to nine months after the first operation. The smaller the abscess the greater the importance of removing the appendix. In large abscesses the appendix seems more likely to completely shrivel than in the small ones. It is seldom, however, that we get large abscesses nowadays as they are more promptly operated on, and therefore we may take it as the rule that the appendix is best removed.

I am, Sir, yours faithfully,

J. CRAWFORD RENTON, M.D. Edin.

Glasgow, July 13th, 1908.

THE CHURCH OF ENGLAND MISSION TO HOP-PICKERS.

To the Editor of THE LANCET.

SIR,—Again I trust you will allow me to appeal through your columns to your many readers, whom otherwise I should not be able to reach, for their practical sympathy with the work we have been doing for the past 30 years among the immigrant hop-pickers. It is not possible for the parochial clergy to minister to the in some cases thousands of immigrants temporarily residing in their parishes and so the mission comes to their aid and sends them trained nurses to minister to the sick, lady workers to help with coffee stalls, club tents, reading rooms, classes, &c., and evangelists and clergy.

Although there has been a large reduction in the acreage under hops in Kent I expect that our 120 workers will be in touch this season with some 40,000 pickers, for the most part Londoners.

In asking for donations and subscriptions towards the £250 I have to raise I would remind your readers that most of our kind helpers only receive their board and lodging expenses.

Bundles of cast-off linen and parcels of literature, of which the supply is never equal to the demand, should be sent to me addressed to Wateringbury Station.

Assuring you of our appreciation of the kind assistance you give us, I am, Sir, yours faithfully,

FRANCIS G. OLIPHANT,
Honorary Secretary of the Church of England Mission to Hop-Pickers and Rector of Teston.

Teston Rectory, Maidstone, July 17th, 1908.

ERYTHEMA IRIS TREATED WITH PICRIC ACID.

To the Editor of THE LANCET.

SIR,—With the limited opportunities of a general practitioner in treating this somewhat uncommon disease I have found the usual methods unsatisfactory. I make bold, therefore, to send you this note, as I found the treatment adopted relieve the symptoms to a marked degree.

Miss ——, aged 31 years, had been treated by me three years ago for erythema iris. The second attack occurred at

exactly the same time this year—the end of June. The lesions, beginning on the backs of the forearms, had affected both wrists, backs of hands and finger-tips, left upper arm, right elbow and shoulder, right thigh and back of calf, left foot on instep, plantar surface of right foot with ball of great toe and both knees. The attack was very severe, much more so than the previous one. Ordinary drugs and applications did no good, the patient being unable to rest owing to the severe pain.

About the fourth day from the commencement of the attack, while the lesions were still appearing, she described the pain as exactly like that of burns, so I decided to try the application of a 1 per cent. solution of picric acid on wool. On calling next day I found that she had passed a good night and was considerably relieved. Under the continued application she got well with scarcely any pain and she was most emphatic about the efficacy of the new lotion, which had been applied fresh twice a day. It is a good plan in applying the picric acid to smear one's hands thoroughly with vaseline to prevent staining.

I am, Sir, yours faithfully,

Croydon, July 12th, 1908. A. PERCY ALLAN.

HOSPITAL APPEAL LITERATURE.

To the Editor of THE LANCET.

SIR,—At the present time a special appeal is being prosecuted at Birmingham, both in the local press and by a committee, on behalf of the Birmingham and Midland Hospital for Women, Sparkhill, which has not received of recent years such financial support as its managers think it deserves and requires. The wiping out of last year's deficit and the prevention of its recurrence are aims laudable in themselves, and worthy of the encouragement of the medical profession, but in the manner of this appeal there is an element rather less praiseworthy. Of the particular statements in the Birmingham press to which exception may be taken perhaps the worst is this: "Compared with 16 other hospitals for women, what do we find? Two-thirds of the women who would have died if they had gone to the other hospitals were restored to life in this hospital. This means thousands of lives have been saved." Now if this wild statement, which is published apparently on the authority of the late chairman of the hospital, conveys anything at all it is the impression that at Sparkhill the treatment of disease is three times as successful as elsewhere, because attended by one-third of the mortality; and further, that thousands of deaths due to lack of skill or care occur at other institutions. I feel sure that no such claim is advanced by the members of the medical staff, but they should take measures promptly to prevent the circulation of such exaggerations. It appears also that at a recent lecture delivered by the chairman of the hospital credit was taken for the publication of the annual death-rate and the remark was added, "this is by no means done by every other hospital." Inasmuch as a few lines higher in the article whence these extracts are taken it is claimed that 1500 lives are saved per annum at the Sparkhill Hospital, and inasmuch as the total number of beds in the wards is 50, it is probable that some of the statistics made public are erroneous and it would in any case have been preferable to refrain from sneers at rival institutions. The importation of unduly commercial methods into hospital appeal literature is occasionally distinctly unfortunate, as in this case: it places the medical staff in an awkward relation to their professional neighbours, both in Birmingham and elsewhere; and it may divert income or legacies from other institutions quite as deserving and quite as poverty-stricken as the Birmingham Hospital for Women.

I am, Sir, yours faithfully,

July 20th, 1908. M.D.

*** We have seen an article in the Birmingham local press which makes us take the views of our correspondent.—ED. L.

INTERNATIONAL CONGRESS OF RADIOLOGY AND MEDICAL ELECTROLOGY.—As already mentioned, a fourth congress will be held in the University, Amsterdam, from Sept. 1st to 5th. The previous congresses were held at Paris in 1900, in Berne in 1903, and in Milan in 1906.

NOTES UPON HEALTH RESORTS.

SCANDINAVIAN WINTER HEALTH STATIONS.

(BY A SPECIAL COMMISSIONER.)

IX.[1]

GENERAL AND CONCLUDING CONSIDERATIONS.

IN my previous articles I have endeavoured to collect and to present in a necessarily condensed form trustworthy information regarding Scandinavia likely to be helpful to English health seekers and their medical advisers. It now only remains in this concluding article to gather up certain fragments of fact and suggestion which may be of service to those who propose to follow your Commissioner's recommendations and to prepare for a visit to Scandinavia next winter.

CONCERNING TRAVEL.

As Scandinavia becomes better known to English visitors means of transit and speed of travel must inevitably be improved. I believe, however, that the popularisation of Norway and Sweden as resorts for winter sport and residence would be accelerated by a little more enterprise on the part of railway and steamboat authorities. It rests in great measure with them not only to supply the means for transit but to develop the desire and demand for travel in Scandinavia. With the completion of the new line between Christiania and Bergen an impetus should be given to all the steamship services between this land and Norway's western seaport Bergen.

I strongly recommend that visitors to either Norway or Sweden should if possible include a visit to Denmark's capital. Copenhagen is a city of many charms and offers much of interest to the medical traveller. Although it does not come within the scope of these articles to deal with the health resorts of Denmark, I have thought it desirable to add a paragraph of hints and suggestions likely to be helpful to those who are wise enough to include a visit to Copenhagen in their programme.

In addition to the serviceable guide-books referred to in my previous articles, special mention should be made of the manual prepared by the Rev. Thomas B. Willson, M.A., a well-known authority on Norwegian history and customs.[2] It contains much valuable information regarding routes and gives particulars of the route viâ Harwich, Esbjerg, and Copenhagen, and along the west coast of Sweden to Christiania. It also gives helpful English and Norwegian phrases and vocabulary. I can specially commend this pocket volume to all visitors to Norway. The same author has recently published a delightful little work on Norway and Norwegians which should be read by every prospective visitor.[3] It contains much information, attractively expressed, concerning the Constitution and Government of Norway, its methods and measures for national defence, the religious life of its people, their literature and music and provisions for education, with notes on customs, laws, industries, and forms of local government. The chapter on "Norway as a Playground" contains much information suited to the requirements of English visitors.

All English lovers of Norway would do well to join the Norwegian Club.[4] In its current "Year Book" a very full bibliography is given of "Literature relating to Scandinavia."[5]

The Christiania-Bergen Railway.

The completion of the new railway between the Norwegian metropolis and the capital of its western seaboard is an event of great importance. It will exercise far-extending

[1] Nos. I., II., III., IV., V., VI., VII., and VIII. were published in THE LANCET of April 25th (p. 1238), May 2nd (p. 1306), 16th (p. 1435), and 30th (p. 1578), June 13th (p. 1717) and 27th (p. 1875), and July 4th (p. 51) and 18th (p. 186), 1908, respectively.

[2] The Handy Guide to Norway, by Thomas B. Willson, M.A. Fifth edition, pp. 275, with maps. London: Edward Stanford. 1906.

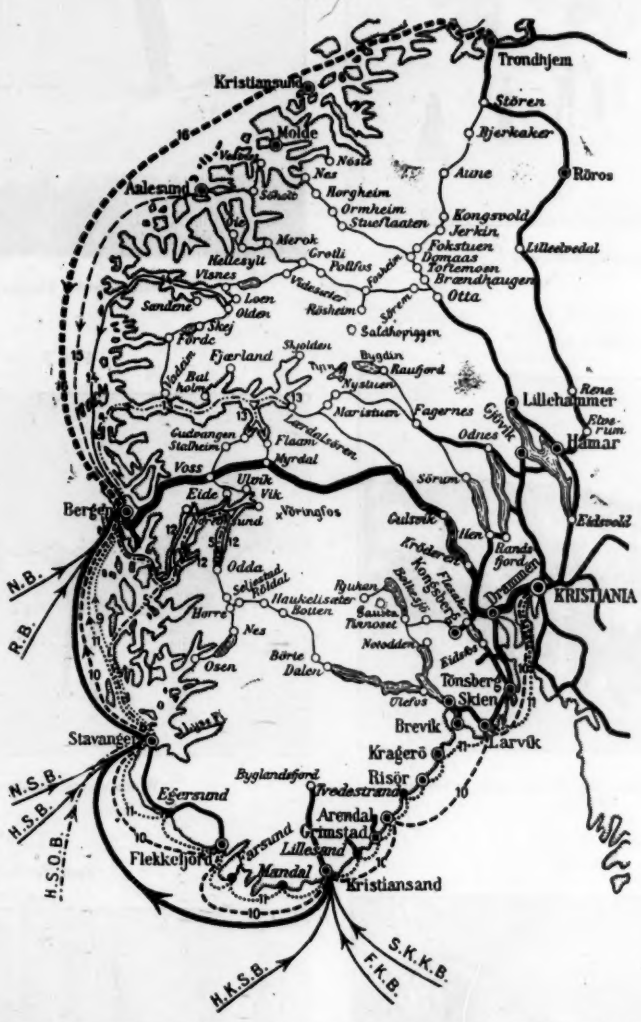
[3] "Norway at Home," by Thomas B. Willson, M.A. Pp. 228, with illustrations. London: George Newnes, Limited. 1908. Price 5s. net.

[4] The headquarters of the Norwegian Club are at 112, Strand, London, W.C.

[5] The Year Book of the Norwegian Club for 1908. Edited by T. Olaf Willson. London: William Clowes and Sons, Limited.

influence on the development of the country as well as afford to English health seekers, tourists, and sportsmen the most direct entry to Norway itself and the best means of gaining speedy access to the whole of Scandinavia. Brief reference must therefore be made to this remarkable example of engineering and State enterprise. The district between Christiania and Bergen is in the main a wild and barren mountainous region. The construction of the new line has been difficult and expensive and during the winter considerable labour and constant supervision will be required to keep it open. At the time of my visit it was impossible to travel over it, the snow sheds having proved insufficient to protect the line from being snowed up. The line from Bergen to Vossevangen was opened in 1883, a length of 107 kilometres. This has been extended over Hardanger Vidda into Hallingdal, thence along the valley to Gulsvik and so on to Christiania. (Fig. 1.) The highest point of the line reaches an altitude of 4103 feet. On the Vidda snow lies during eight months of the year. This new railroad will open a district which should prove a veritable sanatorium for Norway. No doubt in the near future many charming health stations will be established along its course. It is believed that this new iron road will be the main route to the North of Europe. Whether this be so or not must in great measure depend on the speed and comfort of the steamboat services between England and Bergen. The distance between Newcastle and Bergen is 400 miles and at present the journey takes 32 hours. Steamers of increased power should be provided so that the time at sea is reduced to 24 hours. It is calculated that the 494 kilometres between Bergen and Christiania can be covered in about 10 hours. It is thus hoped that before long the mail service between Christiania and London may be accomplished in about 45 hours. If this can be managed nearly 10 hours will be saved on the present mail route viâ Flushing which takes about 54 hours.[6]

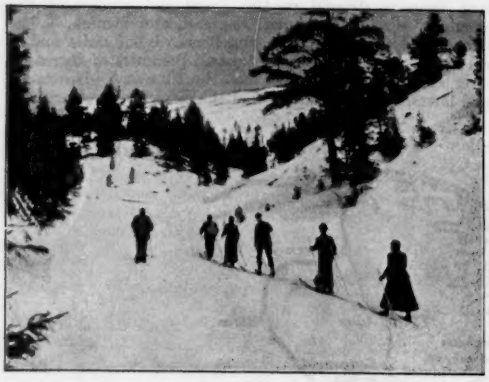
FIG. 1.



Map indicating the new Christiania-Bergen railway and the other Norwegian railways. The chief steamboat routes are also shown by dotted, broken, and continuous lines. The principal sea routes from England and Europe are indicated by arrowed lines and lettering: N.B., Newcastle to Bergen; R.B., Rotterdam to Bergen; N.S.B., Newcastle, Stavanger, Bergen; H.S.B., Hull, Stavanger, Bergen; H.S.O.B., Hamburg, Stavanger, and Bergen; H.K.S.B., Hamburg, Christiania, Stavanger, Bergen; F.K.B., Fredrikshaven, Christiania, Bergen; S.K.K.B., Sassnitz, Christiania, Christiansand, Bergen.

[6] An interesting and illustrated account of the new Christiania-Bergen Railway is contributed by the Rev. T. B. Willson to this year's "Year Book of the Norwegian Club." London: William Clowes and Sons, Limited. 1908.

FIG. 2.



Ski-touring in Norway.

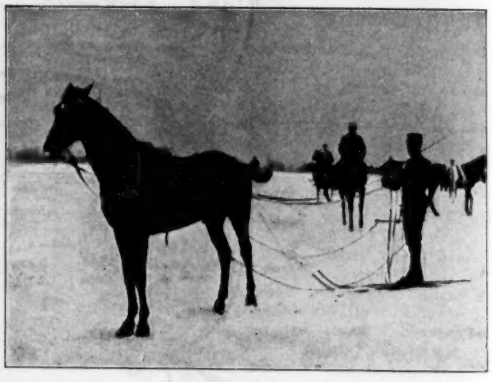
FIG. 3.

Winter sports: Ski-jumping.

FIG. 4.

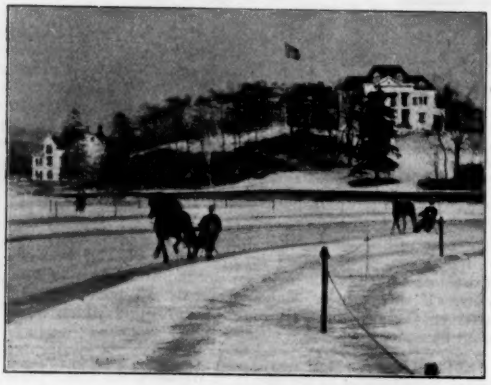
On the way to the ski contest at Hindas, near Gothenburg, Sweden.

FIG. 5.



Winter sports: Ski-driving.

FIG. 6.



Trotting matches on the ice at Christiania.

FIG. 7.

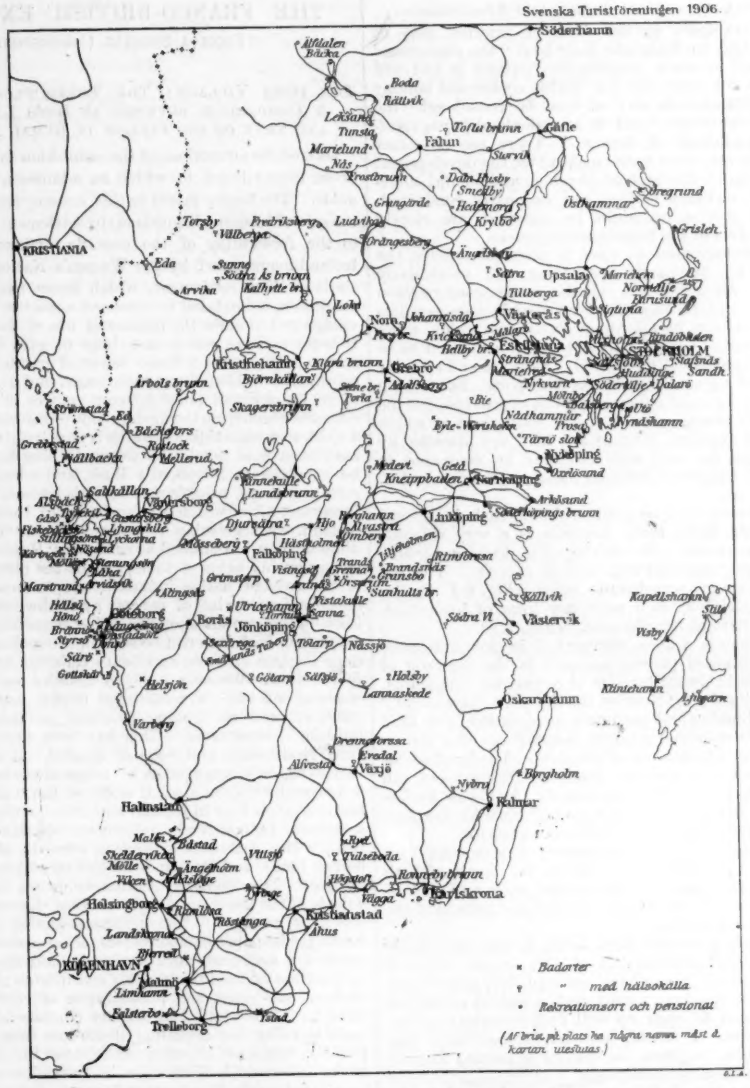
Winter life in Scandinavia: Sleighing.

The Route to Scandinavia viâ Copenhagen.

Although strictly speaking Denmark cannot geographically be considered a part of Scandinavia, yet it is well to remember that the Dane must be ranked among the Scandinavian peoples. Denmark politically, ethnologically, and socially has been closely associated with Norway and Sweden. If the Norseman is to be considered the Scotsman of Scandinavia and the Swede the Frenchman of Scandinavia, then the Dane may justly be accounted as the Englishman of the Scandinavian peoples. Christiania reminded me much of Edinburgh; Stockholm is the Paris of the north; but Copenhagen in many ways is a little London.

To all visiting Scandinavia either for study or sport, health or recreation, a break of the journey at Copenhagen is to be recommended. The Finsen Light Institute is alone worth a visit to Copenhagen. Through the kindness of Dr. Forchhammer, Dr. Regn, Dr. Hasselbalch, and my friend Dr. V. Maar, I was enabled to inspect all departments of this wonderful monument of the genius and organising ability of the great Finsen. Dr. E. M. Hoff, the chief medical officer of health of Copenhagen, afforded me much information and I am greatly indebted to his courtesy and kindness. In sanitary matters and educational methods Denmark is in the van of progressive nations.[7]

FIG. 8.



Through the kindness of Mr. Valdemar Langlet, the able secretary of the Swedish Touring Club, we are able to reproduce this helpful map indicating the geographical position of some of the chief health stations, hydropathic establishments, bathing places, and sports centres in Sweden. (See also article on "Sweden's Health Stations" in the British Journal of Tuberculosis, July, 1908.)

In some future articles I hope it may be possible to deal with the health stations of Denmark.

There is a Danish Tourist Association,[8] the headquarters of

[7] Although now needing considerable amplification the informing volume, "Denmark, its Medical Organisation, Hygiene, and Demography," published with subvention of the Danish Government and presented to the Seventh International Congress of Hygiene and Demography, London, 1891, Copenhagen: Jul. Gjellerup, Sölvgade 87, should be studied by all medical visitors to Denmark.

[8] "Den danske Turistförening."

which I visited in Copenhagen. This body publishes a good handbook but I was unable to obtain any edition in English. I would suggest to the council of this association that its duty to itself as well as to others is to provide an adequate edition for English and American visitors.

Special reference should be made to the very excellent work which is being carried out by the Danish National Anti-Tuberculosis Association. The reports of this body are valuable contributions to the literature of the anti-tuberculosis campaign.[9]

SCANDINAVIA AS A PLAYGROUND AND SPORTSLAND.

The Swiss, no doubt by the claim of priority, may be accorded the right to designate their land "the playground of Europe," and in many respects Switzerland is and will long be unique as a resort for the health seeker and holiday maker. But Scandinavia may at least be considered "the playground of the North," and it is undoubtedly *par excellence* "the sportsland of Europe." There are no other European countries where sports making for the development and maintenance of the highest physique and mental alertness are more seriously studied and rationally conducted. The beneficial results, as might be expected, are clearly marked in the lives of the Scandinavian people.

As I have endeavoured to show in previous articles, the winter sports are peculiarly fascinating and particularly health-giving. Snow and ice, climatic states, conformation of the country, and, it may be added, racial characteristics all seem to combine in affording conditions which make almost every form of winter sport not only possible but to be desired and enthusiastically followed. Skis are undoubtedly the national and natural implements for sport. Ski-touring provides one of the most enjoyable forms of exercise for the vigorous of both sexes. (Fig. 2.) The gatherings at which contests for ski-jumping (Fig. 3) are held are attended by enthusiasts from far and near and may be compared in popularity with important football matches in this country. (Fig. 4.)

Lovers of horses will be glad to know that in several forms of winter sport their favourite is a very valuable adjunct and companion. Ski-driving (Fig. 5) is a particularly exhilarating and exciting form of exercise. Trotting matches on the ice are occasionally held. (Fig. 6.) During half the year sleighing is a necessary form of locomotion for the greater part of Scandinavia. (Fig. 7.)[10]

The Englishman is a keen climber and in mountaineering occupies the position of pioneer not only in the conquest of Alpine peaks but in the exploration of Norwegian mountains. Mr. W. Cecil Slingsby's "Norway, the Northern Playground," is a record of climbing and mountain exploration from 1872 to 1903. The Jotunheim region of Norway can offer attractions for the most adventurous of climbers. The ice-fields of this land are numerous and the largest in Europe and can provide unlimited scope for exploration. Professor Forbes in his work on "The Glaciers of Norway" gives illustrations of some of the most notable of Norwegian glaciers.

A word of suggestion and incitement may be added for the benefit of the enterprising. In the far north of both Norway and Sweden there are unexplored snow and glacier-covered regions which should satisfy mind and muscle of the most intrepid and enduring.

To all who propose to visit these lands I must once again strongly recommend membership of the tourist clubs of Norway and Sweden. These have accomplished grand work in the interests of the true tourist and scientific sportsman and are doing much to open up still further these northern regions of delight. I would, however, respectfully urge upon our Norwegian *confrères* the wisdom of issuing English editions of their excellent handbooks.

It may also be permissible to point out here that the visitor to Scandinavia may profitably extend his exploration to Finland, a country which in bygone days has been closely associated with Sweden, and whose people are to be ranked among the progressives of the North.[11]

[9] "Nationalföreningen til Tuberkulosens Bekæmpelse."

[10] We are indebted to Mr. H. Malling, of the "Forening for Reiselivet i Norge," 2 Storthingsgaden, Christiania, for the loan of the blocks from which Figs. 2, 3, 5, 6, and 7 have been reproduced.—ED. L.

[11] Much useful information (a considerable part in English) will be found in "Finlandia," an illustrated handbook issued by the Tourists Bureau, N. Esplanadstreet 31, Helsingfors, Finland. A useful article on the "Anti-tuberculosis Movement in Finland," contributed by Dr. A. Palmberg, appears in the British Journal of Tuberculosis for April, 1908.

My last word must be one of acknowledgment and appreciation to the many who have in various ways assisted me in the preparation of these articles. I have referred to several by name in the course of these communications, but should I attempt to enumerate all those to whom I am indebted the list would indeed be a long one. To one and all your Commissioner desires to be allowed to tender his sincerest thanks.

THE FRANCO-BRITISH EXHIBITION.

(FROM A SPECIAL CORRESPONDENT.)

THE IRISH VILLAGE: THE TUBERCULOSIS EXHIBITION: A COMPARISON BETWEEN AN IRISH LABOURER'S HOME AND THAT OF HIS FELLOW IN RURAL NORFOLK.

ONE of the attractions of the exhibition is a representation of an Irish village, to which an admission charge of 6*d.* is made. The money raised in this manner and the proceeds of the sale of Irish-made goods in the settlement are to be devoted to the forwarding of the crusade against tuberculosis in Ireland inaugurated by the Women's National Health Association. The settlement, which bears the name of Ballymaclinton, is intended to represent a more or less typical Irish village and to show the manner of life of the Irish peasantry. It lacks nothing which may help to give it an Irish atmosphere. There are a round tower of painted canvas, a very substantial and handsome runic cross, and a "ruined" shrine of St. Patrick, but chief interest centres in the stoutly built cottages which form the modern side of the village. Except for a spick-and-span tidiness which is positively depressing Ballymaclinton is as much like the real thing as can reasonably be expected at Shepherd's Bush, and contains, besides its cottages, shops, priest's and doctor's houses, a smithy and a farmyard, all of which are facsimiles of those to be found in Ireland. A vegetarian restaurant where "cutlets à la Jardinière" can be obtained as easily as "Home Rule potatoes" strikes one as being a little out of the picture. In certain of the cottages native industries are to be seen in progress, notably the weaving of carpets by Irishwomen whose fingers knot up the strands upon the string framework with amazing dexterity. Irish lace can be seen in the making and one large room is given up to an excellent exhibition by a firm of Irish soap-boilers. There is a model laundry containing a rotary washing machine, a centrifugal drying machine, an airing chamber, and an ironing machine, as well as a "hand-finishing" department. This has been fitted up by Messrs. Isaac Braithwaite and Sons of Kendal. A small hall in the village has been arranged as a "tuberculosis exhibition." This is a reproduction on a small scale of the Tuberculosis Exhibition now on tour in Ireland and includes the following four sections: pathological, veterinary, appliance, and statistical. The pathological section consists of specimens of human lungs and intestines in various stages of tuberculous disease. The veterinary section comprises samples of tuberculosis in the lower animals, including diseased and healthy bones for contrast. The appliance section includes sputum flasks, tissue-paper handkerchiefs, cheap spittoons made from cardboard and peat, milk sterilisers, and appliances for the preparation of food for invalids and infants; simple open-air shelters, sun-boxes, and photographs of various Irish sanatoriums. The statistical section consists of diagrams and maps showing the appalling death-rate from tuberculosis in Ireland. Copies of literature distributed through the medium of the Tuberculosis Exhibition in Ireland are displayed on a large reading-desk. Another feature of this exhibition is a model sanatorium which consists of a centre building intended to be used as a day-room, with wings extending on either side, divided to form the sleeping apartments. The day-room is well-proportioned and its front is formed almost entirely of glazed sashes. The verandah roof is a continuance of the main roof on the same slope and runs the full length of the building. The rooms are 16 feet long and can be divided to form apartments for single beds. The doors are of sufficient width to allow the beds to be drawn out on the verandah. The sanatorium was erected and equipped by Messrs. Kennan of Dublin, who also exhibit an ingenious and easily worked revolving sun-box. The exhibition also provides a useful object lesson in the models of two small living rooms in two

separate peasants' cottages, one of which is filthy, stuffy, and untidy, and the other clean and well ventilated, providing a good object-lesson of the way to foster the tubercle bacillus and the way to repel it. The writer is well acquainted with various parts of rural England and particularly with the eastern counties, and it may be interesting to readers of THE LANCET to make some comparison from the standpoints of sanitation and healthfulness between the Irish village as represented at the exhibition and a Norfolk village. It may be said that labourers' cottages in Norfolk are, on the whole, as good as, if not better than, those of most counties of England, but that this is so only serves to bring out more strongly the contention of Mr. Rider Haggard and other reformers that the housing of our rural population is a matter of urgent importance and one that requires bettering at once, for in rural Norfolk overcrowding is frequent and sanitary conditions generally are by no means ideal. Let us first compare the model of the cottage in the Irish village in which the grandparents of the late President McKinley were born with a dwelling of the better class in Norfolk inhabited by a farm labourer. I have in my mind at the present time an ancient thatched cottage which in size and general construction presents some features of similarity to that at the exhibition. It contains two good-sized rooms downstairs and three rooms upstairs, and the downstairs rooms, although low in the ceiling and insufficiently lighted by a small diamond-paned window, are of good proportions. The bedchambers, on the other hand, are small and low, and, as is nearly always the case with such rooms, stuffy and ill-ventilated, due largely to the fact that, as a rule, workers on the land have an ineradicable objection to open windows. A point upon which much stress is laid in the conduct of the campaign against consumption in Ireland is the need of impressing upon the peasants the good effects on health produced by keeping bedroom windows open. I was told at the exhibition that this advice has been largely followed with excellent results.

To return to our comparison. The McKinley cottage is, like the Norfolk dwelling, thatched and contains the same number of rooms, but these, perhaps, are not so well lighted and the ceilings are certainly lower. The floors are of stone, while in Norfolk bricks are chiefly used for flooring, and a striking difference in the architecture of the two cottages is that the main door of the Irish cottage opens into a passage, while the door of the Norfolk dwelling opens directly into the living room, possibly an advantage in the summer time but a more than doubtful blessing in the winter. Plumbing and sanitary appliances are absent, except that sinks are provided for general washing purposes, with waste-pipes to carry off the dirty water. In the Irish domicile the old-fashioned open hearth with peat for fuel is used for heating and cooking, and in Norfolk a small grate is employed. The McKinley cottage is built of stone, the English cottage of clay lumps, a material which in former years was largely used in Norfolk for the building of labourers' dwellings. Such cottages are of a superior type to those met with most frequently either in Ireland or in Norfolk. One-roomed huts are fairly common in Ireland and there is in the Irish village a reproduction of a Galway fisherman's one-roomed cottage which, it may be presumed, is characteristic of this class of abode. It is a large apartment containing nothing in the way of furniture that is not absolutely necessary. In the case of a large family living in quarters so confined it is an obvious menace both to decency and to health and particularly a source of danger as regards pulmonary tuberculosis. In Norfolk and in the agricultural parts of the eastern counties a one-roomed cottage is practically unknown, but the cottages are often too small and some degree of overcrowding and dirt are everywhere in evidence, the overcrowding being accentuated by the fact that the number of dwellings is quite insufficient for the needs of the agricultural population. In both Norfolk and Ireland one of the greatest evils with which the agricultural labourer has to contend is that his water-supply is almost invariably derived from an open well, often situated close to an outside closet and subject to many kinds of surface contamination. I should judge, however, that the lot of the Norfolk labourer, from a sanitary point of view, is far better than that of the Irish peasant, although a visitor to the exhibition might be led by the clean and tidy appearances of the whitewashed cottages to forget the lack of sanitary appliances which they present.

THE HUNGARIAN EXHIBITION, EARL'S COURT.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

THE PREVENTION OF CRIME AND DISEASE.

EXHIBITIONS systematically and scientifically organised, such as those of the Balkan States last year and of Hungary this year at Earl's Court, should serve as admirable object lessons in the education of this country. The misfortune is that most people go to these exhibitions in the search of some sensation, some amusement, and something pretty to look at. As a matter of fact, the present Hungarian exhibition should be utilised by teachers to conduct classes of juvenile and even adult pupils and to impart lessons that would be wearisome and but slowly learnt from books. Also there is no book extant that could give so graphic and complete a lesson on Hungary as a visit to the exhibition will convey, if someone who knows and can explain would accompany the visitor. Such exhibitions, being each year of a different nationality, should become part and parcel of our educational system. The professional, the commercial, and the artisan classes would each find that there was something to be learnt and something worth imitating. This was very emphatically demonstrated on Thursday afternoon, July 9th, by the Friends' Social Union.

Mr. Percy Alden, M.P., who has made a special study of the administration of Hungary and who in England takes an active part in questions relating to prison reform, was invited by the Hungarian commissioners of the exhibition to show his colleagues what had been done in Hungary in regard to reformatories. For this purpose, and with the assistance of the Friends' Social Union, a large meeting was held in the restaurant of the Queen's Court. Mr. Herbert Samuel, M.P., Under Secretary of State for the Home Department, took the chair, and among other Members of Parliament present were Mr. J. A. Robertson, Mr. W. P. Byles, and Mr. E. H. Pickersgill. Mr. Herbert Samuel spoke at some length and commenced by stating that there was no country where more had been done to reform the young offender than in the enlightened and progressive state of Hungary. It is not everyone who realises that lessons are to be learnt from Hungary, and this is the use of such exhibitions as that now held at Earl's Court. From all time the child has offered the best field where we might hope to stop at its source the reservoir from which flow pauperism and crime and their attendant insanitary and health-destroying conditions. At the Franco-British Exhibition we can see something of what is done in this country in regard to reformatory schools, and it will thus be apparent that the Hungarian Government has applied more careful and advanced methods. But Mr. Samuel insisted that we were improving and that is the object of last year's Probation of Offenders Act. By this enactment the juvenile offenders, instead of being thrust down among the criminal classes, are submitted, not to detention, but to supervision and to training. They are placed under the care of some institution, church, chapel, Salvation Army, or private individuals, to be watched and trained and, if possible, reformed. This law has not been in force for a year and the result is not known, but from the public health point of view it will do great good if town- and slum-bred children can be sent to the country.

Then we have also the Children Bill which fills no less than 80 pages. This very important measure is best known from the fact that it proposes to prevent children smoking, an attempt that will meet with the approval of all sanitarians. But the more important object of this Bill, Mr. Samuel explained, was to do all that was possible to prevent rather than to punish. Therefore the industrial schools must be increased, not in view of a larger number of offenders, but rather to save young boys and girls from criminal surroundings. The Bill proposes to make it the duty of local authorities to seek out the children of drunken and criminal parents and to send them to these institutions, even if they have committed no offence. The sense of parental responsibility is to be stimulated by forcing people to appear at police-courts when their children

have committed an offence and to pay fines for their children up to the age of 16 years. Juveniles are to have no contact whatsoever with adult criminals. Imprisonment is to be absolutely abolished up to the age of 14 and rendered very rare up to the age of 16 years. Young offenders are no longer to be treated according to a uniform plan. It has been at last realised that progress is from the simple to the complex. We classify and subdivide and this is the measure of our success. The Borstal system which was only applied voluntarily was now to receive legal sanction and the age extended for boys from 16 to 21. They would thus have a better opportunity of learning successfully a useful and remunerative trade, and then it would be easier to secure for them good employment. As it is, if we examine the population of our criminal prisons it will at once be seen that the majority of prisoners are not physically fit to earn their living as unskilled labourers and they have had no training that can enable them to attempt skilled work. There was no disguising the fact that many were in prison, not because they were criminals by nature, but simply because they could not find a place for themselves under the present economic system. Obviously, if a man knows no skilled trade and is not strong enough to work as a labourer in an unskilled trade he must become a thief, or a pauper, or a patient in a hospital or a workhouse infirmary. Thus he is certain to be a burden on the community.

Mr. Pickersgill pleaded that what was wanted in the prisons was more light, more air, and more work, especially work in the open. The dark small cells, the old-fashioned ideas of the warders, do not lend themselves to the reform of the prisoners. Mr. Percy Alden wanted to know where badness ends and madness begins. He read out statistics to show the enormous proportion of illiterates among criminal prisoners and remarked that many convicts were proved to be lunatics. Inquiries as to the sanity of a prisoner should take place before and not after his conviction. There was a necessity of constant classification and open-air State farms and State colonies, especially for the weak-minded. In Germany there are many labour colonies, and improvement results where criminals are made to take care of animals. The worst men had to mind the pigs, and the pigs did them a great deal of good. They wanted fewer military men and more medical men. The so-called criminal had to be studied and examined scientifically.

When the discussion terminated the whole audience followed Mr. Shrubsole to the theatre where they were shown on the screen photographic projections of the reformatory schools in Hungary. Then they examined the exhibits of the work done in these schools and these may be seen at the far end of the section devoted to the Hungarian State Railways. Thus it was shown how these children are trained in all forms of agricultural, horticultural, and viticultural work, and the care and rearing of animals. Indoors they are taught music, drawing, carving, sculpture, carpentering, furniture making, weaving, spinning, carpet making, and they also turn out excellent boots, shoes, trunks, boxes, baskets, and fancy articles such as reticules, purses, &c. Many of these objects are to be seen at the exhibition and testify to the very practical training given to the children who but for these institutions would in all probability become members of the criminal classes. These children are grouped in family circles of 20 and a teacher lives with each group, devotes his life to them, acts as their father, is always gentle and kind, and encourages them to love their work and each other. Great care, of course, is taken to select the sort of work that best suits the nature of each child. Unfortunately, the five reformatory schools of Hungary can only receive and train 1000 boys and girls, but the results attained are so excellent that their number must shortly be increased. Of course, and though the primary object is the reduction of crime, it is obvious that this also means a corresponding reduction of sickness; indeed, the criminologist is recognising more and more that the reform of character is very much a question of fresh open country air, healthy occupation, good food, and personal cleanliness. Bad sanitation engenders crime as well as disease. The Hungarian Exhibition contains an excellent object lesson of how both crime and disease have been, and can be, prevented among no inconsiderable section of the population.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

The Congress of the Royal Institute of Public Health at Buxton.

BUXTON is near enough to Manchester to impart a local interest in the congress of the Royal Institute of Public Health. The proceedings opened on July 18th and will last till Friday of this week. It was specially fitting that the Duke of Devonshire should be President at Buxton, as the late Duke and the whole family have long taken a warm interest in the prosperity of the place. The present Duke, moreover, continues to take the same active interest in its welfare, as is shown by his now being the chairman of the Buxton urban district council. It may also be claimed that by heredity an interest in science, and sanitary science as one of its branches, was surely to be expected in one who could trace descent from Henry Cavendish. It was an interesting occasion and it may be safely predicted that knowledge will be spread by the papers and discussions and increased public attention will be directed to the many and difficult problems of public health and its maintenance in a crowded and smoke-laden country where pure air is difficult of attainment and pure water is a costly luxury. After the Duke's address of welcome, Professor W. R. Smith asked him, in the name of the Institute, to become its President and honorary Fellow, and proceeded, amid the enthusiasm of the assembly, to invest his Grace with the badge of office. In thanking the Institute for the honour conferred on him, the Duke spoke on many of the subjects included in the work of the Institute and considered that the arrangement by which the Institute agreed to train the officers of the Salvation Army in the principles of public health seemed one of much promise. He spoke hopefully of the Daylight Saving Bill, and thought that if more use were made of the daylight it would be good both for the health of the people and for commerce. With regard to milk and tuberculosis, he was prepared to welcome as stringent an examination as possible, but he said that "they should not always be harassing the farmer," mentioning as an instance a milk-farmer who in a short time was written to by 123 representatives of various authorities. Being so near Manchester it seems quite natural that many Manchester names appear among those who read papers or preside over sections, as Dr. Joshua J. Cox, who presides over that for Child Study and School Hygiene, as does Professor T. Oliver of Newcastle over Industrial Hygiene and Factory Legislation, and Professor S. Delépine over Bacteriology and Chemistry. Mr. W. F. Dearden and Professor Schwarz are vice-presidents of the Industrial and Hygiene Section and Dr. E. J. Sidebotham is an honorary secretary for the section of Bacteriology and Chemistry. Professor Graham, of Dalton Hall for Students, will speak on "Smoke Abatement." It is a subject to which he has paid much attention, and if he can bring about with the aid of the institute the extinction or even the sensible diminution of the cloud by day brooding over our towns he will deserve the thanks of generations to come. Sir J. Crichton-Browne, as president of the Preventive Medicine Section, yesterday turned the search-light of common-sense on some of the theories of diet, in his own special way, with refreshing effect. If the weather continues bright the congress will be not only useful and important but also enjoyable.

A School for Mothers.

There is no doubt that a large proportion of the mothers in the poor districts of Manchester are terribly ignorant of the way in which their babies should be fed and brought up, if they are to have a chance of passing safely through their first year of life. This state of things exists more or less through the whole of the country and, of course, has a direct bearing on our high infantile mortality. Encouraged by the example of the School for Mothers in St. Pancras, London, the Ladies' Public Health Society has taken steps to establish such a school in Manchester, and it is making an appeal for help. It is clear that if the scheme be conducted with tact and discretion, so as to afford instruction in the methods of preparing food, and the proper food, for both mother and infant, in accordance with the limitations of very poor homes, great good may be done. In Dr. J. Niven's report for 1906 the deaths per 1000 under one year were 169

but they were very much higher in some districts than others. In Ancoats the deaths were 203 per 1000, in Clayton 197, in Bradford 191, and so on. The causes of this lamentable sacrifice of life are no doubt many, but perhaps the most important is the ignorance of the mothers as to the proper care of themselves and their babies, while the next is the poverty and poor nutrition of the mothers which unfits them for nursing their children. "The aims of the school are to provide substantial dinners at low cost to expectant and nursing mothers; to give instruction as to the care, management, and feeding of babies"; and to provide places where skilled medical advice will be given. The ladies wish to raise £250 for the first year's needs and it is to be hoped that this comparatively small sum will soon be obtained.

July 21st.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

The Swansea Hospital.

THE ninety-first annual report of the Swansea Hospital, which was presented at the meeting of the board of that institution held on July 10th, showed that during 1907 the average daily number of occupied beds was 119·70. The financial statement showed that the income amounted to £9603 and the unfavourable balance was now £1732. The committee is of opinion, on account of the large number of patients always waiting for admission, that the time has arrived for increasing the number of beds, repairing and modernising some of the wards, providing more accommodation for the nursing staff, and improving the domestic arrangements of the institution.

West of England Water-Supplies.

The new water-supply for Brixham (Devon) was formally opened on July 16th in the presence of a large gathering. The Brixham urban district council recently entered into an agreement with Paignton for a supply of water from its works on Dartmoor. The cost of the undertaking has been about £7000. Brixham will now be supplied, in conjunction with Paignton, Teignmouth, and Ipplepen, with the upland waters of the Holne Moor watershed, over 700 acres in extent and lying between 900 feet and 1700 feet above sea level.—At a meeting of the town council of St. Ives (Cornwall) held on July 13th it was decided to apply to the Local Government Board for sanction to borrow £13,500 for the purposes of the new water scheme for the town.

The Winsley Sanatorium.

At a meeting of the committee of this institution held last week it was resolved that patients should be admitted for eight weeks (instead of 16 weeks as previously). This period of time can be extended to 16 weeks on the recommendation of the resident medical officer, with the consent of the nominator.

Obituary: Henry Julian Hunter, M.D. Aberd.

Dr. H. J. Hunter of Park View Lodge, Oldfield, Bath, died on July 13th, in his eighty-fifth year. Dr. Hunter, who graduated M.D. of Aberdeen in 1855, was the son of the late Rev. J. Hunter, a Unitarian minister of Bath. He practised at Sheffield for many years, and about 12 years ago he retired from active work and returned to his native city of Bath, where he became a very popular and respected citizen. He took a great interest in the Royal Literary Institution, of which his father was the founder. The funeral, which took place at the Bath Cemetery on July 16th, was largely attended.

July 21st.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

School of Medicine of the Royal Colleges, Edinburgh.

AT a recent meeting of the governing board of this school the secretary and registrar, Mr. R. N. Ramsay, reported that the number of students attending the school during the winter session 1907–08 was 1026 and during the summer session 1908 the number was 855.

The Chair of Chemistry in the University of Edinburgh.

At a meeting of curators of the University of Edinburgh held on July 16th, Professor Walker, D.Sc., University College, Dundee, was appointed to the chair of chemistry vacant by the resignation of Professor Crum Brown. There were seven applicants, not one of whom was a graduate in medicine. Professor Walker is 45 years of age. He received his early education in Dundee and entered the University of Edinburgh in 1882, and three years later graduated as B.Sc. in chemistry and physics. In 1886 he took the degree of D.Sc. in inorganic chemistry and chemical technology, his thesis being on "The Dehydration of the Metallic Hydroxides by Heat." He then demonstrated for a year in the chemical laboratory. After that he studied chemistry in University College, Dundee, in Munich, and in Leipsic. On his return to Scotland he became research assistant to Professor Crum Brown, and for three years was engaged in research work and in teaching. In 1892 he entered University College, London, and at the end of the year was appointed assistant to the professor of chemistry there, and in that capacity conducted lecture and practical classes, chiefly for medical students. In 1894 he was elected to the chair of chemistry in University College, Dundee. In 1896 the Royal Society of Edinburgh awarded him the MacDougall-Brisbane medal for researches in physical chemistry.

Inverness Northern Infirmary: The Treatment of Pulmonary Tuberculosis.

At a special meeting of the managers of the Northern Infirmary held recently a report by the house committee on the treatment of phthisical patients was submitted. It was stated that a donor was prepared to give £1600 for the treatment of pulmonary tuberculosis in the infirmary. The report stated that the committee had had under consideration two alternative schemes—the one to put up the wards required in the grounds to the south of the main building and quite apart from the other infirmary buildings, the other to utilise an isolated ward to the back of the main building and to enlarge it so as to give the required accommodation. Owing to the initial expense of construction and the heavy administrative cost involved the committee was obliged to pass over the former more desirable scheme. It found, however, that by enlarging the west ward, two wards, one for males and one for females, each containing four beds, with a private room for special cases, nurses' room, kitchen, &c., can be provided for from £800 to £850, while the cost of administration would not exceed £40 a year. It therefore reported that a suitable ward, with male and female accommodation, can be provided and equipped, and the administration expenses practically secured out of the gift of £1600 without laying more than a trifling burden on the finances of the institution, and it recommended that the gift offered should be now definitely accepted, and that a remit should be made to the committee to have the work carried out forthwith in terms of Dr. Ross's report. After some discussion the report was adopted.

July 21st.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Tuberculosis Prevention (Ireland) Bill.

THE Irish Medical Association has now passed resolutions in reference to this Bill which was read a second time on July 15th. The Association upholds the compulsory notification of tuberculosis throughout Ireland when the cases occur under conditions of defective hygiene or where segregation of patients is difficult and there is probability of infection. A further resolution stipulates that there should be no compulsion of notification as applied to the medical adviser, "whose duty will be discharged on his notifying, in writing, the patient or responsible person, such as a parent or guardian or person in charge, who will then be obliged to notify the sanitary authority, and that the sanitary authority supply every medical man in their district with printed forms of such notification." The Association recommends, among other things, that the Local Government Board should be advised by a committee of practising physicians and surgeons as to what forms of tuberculosis should be notifiable and that competent superintendent medical officers of health and bacteriologists should be appointed to the counties.

Two Cases of Alleged Husband-poisoning.

Ireland has had the rare experience within the past few days of witnessing two trials on the criminal charge of husband-poisoning. One of these was heard at the Donegal assizes and the other at the Mayo assizes. In the former case the poison employed was strychnine which was administered in tea. The victim, David Buchanan, was an elderly farmer, and the prisoner, who was aged 45 years, had been living for some years on unfriendly terms with her husband. The latter had recently taken action against a neighbouring farmer for damages on account of the alleged existence of improperly intimate relations between him and Mrs. Buchanan. The attempt to poison was made just a month previously to the date of the hearing of the civil action at the assizes and the prosecuting counsel suggested that the accused woman had made the murderous attempt for the definite purpose of ending the proceedings in the most effective manner possible. On June 16th Mr. Buchanan made his own breakfast, using some sugar and cream which had been left out by his wife. After taking some of the tea he immediately became ill and a dog which drank some cream that had been emptied from the bowl died within ten minutes. The husband had taken some of this cream in his tea and on observing the bitterness of taste he threw away the contents of his cup. The prisoner then threw away the cream, loudly exclaiming that he was always suspecting her of attempting to poison him. Evidence proved that before the occurrence of the incident the prisoner had "cleaned down the house," bought in a stock of candles, and made other usual preparations for a coming "wake." Also that she had remarked to her husband that she was sure that he would not live long. Professor Barklie of Belfast, who had analysed the contents of the dog's stomach, stated that he had found therein three grains of strychnine, and nearly the same amount was found on post-mortem examination of Buchanan. Mrs. Buchanan was found guilty and was sentenced to 20 years penal servitude. In the Mayo case the accused was alleged to have used phosphorus, but the proofs were practically absent and acquittal followed.

July 21st.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Selective Action of Radium upon Angiomatous Tissue.

AT a meeting of the French Society of Dermatology and Syphilography on July 2nd M. Wickham and M. Degrais recapitulated their former communications upon the selective action of radium in the treatment of certain affections of the skin. This is in no case more striking than in the case of angiomatous tissues. The tumours can be blanched and reduced without the establishment of any inflammatory reaction. These results can be obtained by different methods, either by very short but frequently repeated exposures or by the interposition of a screen of varying thickness for exposures of longer duration, a method in which a very small total dose of the emanations is employed. This treatment without reaction has distinct advantages but it is little used on account of its slowness; in the majority of cases it is better to allow a reaction, although it may be only a slight one.

A Dry Regimen in the Gastro-enteritis of Infants.

At the Medical Society of Paris on June 27th M. Galois maintained that the part played by infection in the gastro-enteritis of infancy has been exaggerated. He considers that dyspepsia is the prime cause and that if infection supervenes it is secondary to this condition and to overfeeding. He accordingly does not direct his treatment to disinfecting the alimentary canal but reduces the amount of food and employs a dry regimen. He says that in children it will often cure the disease in 24 hours, his rule being to give every two hours a spoonful of a cream composed of the following mixture: a dessert-spoonful of a kind of Swiss cheese and a table-spoonful of sweetened milk.

Ionic Treatment in Epilepsy and Tabes.

At the same meeting M. Schmidt narrated his experiences of treating an epileptic with bromine and magnesium administered by the ionic method. He stated that the treatment modified the fits and lengthened the interval between them, calmed the man's mental condition, and improved his sleep; he had nearly entirely lost a bromide eruption that he had had before the treatment was commenced. M. Schmidt found that phosphorus and magnesium ionisation were ineffective in one case of tabes but gave very satisfactory results in two and a quite remarkable improvement in a fourth. The unsuccessful case was probably due to the extreme sensitiveness and great nervousness of the patient who would not allow a sufficient dose to be administered. In the other three cases the lightning pains and gastric crises have disappeared, the sight and the gait have improved, and one of them, a tabetic in the stage of cachexia, with sloughs, a Charcot's joint, a perforating plantar ulcer, and a spontaneous fracture, has suffered no more complications since the ionic treatment was adopted more than a year ago.

Morphinomania and Divorce.

An interesting case has been occupying the attention of the Divorce Court. The plaintiff was a respectable business man whose married life, once quite happy, had been completely ruined from the day on which his wife accidentally tasted morphine. By dint of assiduous care her husband had cured her in spite of herself but it was only to see her give up this habit to take to indulgence in alcohol. Counsel for the husband argued that he had suffered grave injury by his wife having lost control of herself and of her reason by exposing herself voluntarily to a habit which degraded her below the level of a human being. By sinking to such depths she had shattered the tranquillity of the household and endangered the peace of mind and the lives of her husband and her children. Her counsel replied that her condition was a disease rather than a fault and that she ought to be looked after and not to be punished. He asked for expert medical evidence to assess the degree of his client's responsibility. The court, however, found for the husband and granted him the divorce with custody of the children.

The Progressive Decrease in Pulmonary Tuberculosis.

M. Armaingaud made an interesting communication on this subject to the Academy of Medicine on July 7th. He first stated that notwithstanding public opinion the decrease in the mortality from pulmonary tuberculosis during the last 25 years had amounted in Paris to more than 21 per cent. In Berlin it had been 35 per cent., in Vienna 45 per cent., in New York 41 per cent., and in London 25 per cent. during the same period. The decrease of 21 per cent. in Paris testifies to the general improvement in sanitary conditions and to the commencing success of the struggle against tuberculosis. In spite of this many medical men have considered that the mortality from this disease was on the increase. On account of the changes which have been made lately in the nomenclature of diseases in the mortality returns from 800 to 850 deaths are now put under the heading of pulmonary tuberculosis which formerly would have been returned under other diseases. Another source of error is the increasing number of persons suffering from this disease who do not live in Paris but come into the city's hospitals for treatment. If the number of deaths amongst such patients be subtracted from the total mortality from tuberculosis in the Parisian hospitals a real diminution in their death-rate from this cause becomes apparent.

Insufficient Mastication and Gastric Disorders.

At a meeting of the Academy of Medicine on July 7th M. Jacquet and M. Debas insisted upon the importance of slow and sufficient mastication to the perfect performance of gastric digestion. This fact has, it is true, been recognised for a long time, but they have brought positive proof to bear upon it in the form of radiographs which show clearly that people who eat quickly have their stomachs distended abnormally and for too long a time after meals, much more than those persons who masticate their food carefully. This habitual tiring of the stomach at length produces a permanent distension of the organ, atony of its muscular wall, stagnation of its contents, and all the evil train of consequences to the chemistry of digestion. Further, reflex troubles are caused in other systems, such as arterial hypertension, neuralgia, and neurasthenia. M. Jacquet remarked that amongst the Americans, who have long suffered from the ill-effects of hurried eating, certain societies have been formed to promote mastication.

Tick Fever in Abyssinia.

At a meeting of the Society of Tropical Diseases on July 8th M. Brumpt summarised the experiments which he made personally in 1901 with ornithodorus moubata. The negative results then obtained induced him to write that the native belief in the virulence of this tick was erroneous. But lately he has received a batch of 110 Abyssinian ticks with which he has succeeded in infecting a monkey, and he now acknowledges the existence in Abyssinia of tick fever which has been known since 1903 but hitherto only in the Congo and German East Africa. This spirochætal disease must be spread over a wide area in Abyssinia, for ornithodorus is found in all the hot sandy valleys and, unlike the other ticks, has its exclusive habitat in the soil.

July 20th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

The Practitioners' Association.

THE Practitioners' Association (Deutscher Aerzte-Tag) held its annual meeting on June 28th and 29th at Dantzic, Professor Löbker of Bochum being in the chair. In his inaugural address the President alluded to the question which for the majority of medical practitioners is of the greatest importance—namely, the forthcoming reform of the workmen's insurance laws. He said that these laws had formerly been made without regard to the interests of the medical men and that the Government had heard the opinion of experts of all classes but not that of the representatives of the medical profession, although no other profession or class had been so seriously affected by the operation of these laws as the medical profession had been. This state of affairs had lately been improved, for the Government in connexion with the forthcoming reform of the workmen's insurance laws had convoked a conference to which, apart from representatives of the sick-clubs, the employers' associations, and other bodies, representatives of the medical profession had been invited. He said that he was unable to give fuller particulars concerning the result of the conference but he could say that there was no chance of all the wishes of the profession being granted, especially as regards the compulsory enforcement of the "free choice" system. He saw grounds for hoping, however, that the unpleasant conflict between clubs and medical men which caused so much friction would in future be restrained by legislation. The whole matter was to be discussed in Parliament when the Government introduced the Bill, and he hoped that the medical members of the Reichstag would induce their respective parties to remember the interests of the medical profession more than had been the case hitherto. After the inaugural address the congress discussed the question of the instruction of school children in hygiene. Dr. Stephani of Mannheim proposed a motion that such instruction is very desirable in the interests of the public health. The training for the profession of teaching should include lectures on hygiene so that the teachers may be able to instruct their pupils on these matters. In large schools and colleges the elder pupils should be instructed by medical men. The hygienic instruction should teach the evil effects of alcoholism and also of quackery. Sexual hygiene should not be included in the school instruction but should be left to the parents. In the discussion attention was drawn to the fact that, especially in the country, the teachers themselves sometimes were quacks and that it was undesirable to allow them to propagate their peculiar views on hygiene and medical matters amongst their pupils. When there were medical officers to schools throughout Germany, as at present is the case in certain towns and districts only, it will be their duty to give the instruction in hygiene. A discussion followed upon the question as to whether whole-time medical officers for schools were desirable or whether these appointments should be held by general practitioners. The advantages of both systems were discussed. A medical officer who devoted his time exclusively to the schools would be less liable to come into conflict with the medical attendants of the children than if he were at the same time a medical practitioner himself. It has been observed that the parents often desire to consult the medical officers of the school privately about their children to the prejudice of their regular medical attendants, and that this is avoided by the appointment of a whole-time medical officer. On the other hand, it was said that the medical practitioners were more fitted for these appointments because they were more closely in touch with the people than were medical officials. Another subject dealt with was that of the fees payable for insurance certificates. The committee of the insurance companies has proposed to alter the existing agreement and to substitute a new contract based on the sliding scale, according to the sum for which the insurance is taken out. The association agreed to the proposal of the insurance companies, with the proviso that it should be at first effective for a period of three years only. The meeting then discussed the question of membership of sick clubs. Although membership is compulsory only for workmen earning less than M.2000 (£100 a year) a good many men continue to be voluntary members after their wages have risen above this sum. Workmen who have become masters are among the members of the clubs, and by paying small contributions enjoy the benefits of an institution intended for the working class only. A motion was carried that the clubs should be obliged to pay a higher fee to their medical officers for their voluntary members. The last subject discussed by the meeting was the forthcoming legislation on unqualified practice. The meeting decided to accept the principles of the Bill proposed by the Government (see THE LANCET, March 14th, 1908, p. 818), provided that certain amendments were admitted. As the Bill will not be introduced in Parliament before the next meeting of the association the discussion was adjourned till next year.

July 20th.

COPENHAGEN.

(FROM OUR OWN CORRESPONDENT.)

Intravenous Injections of Strophanthine.

AT a recent meeting of the Swedish Medical Society Professor C. G. Santesson read a paper on intravenous injections of strophanthine. He laid stress on the fact that the increase in the effect of the work of the heart was due far more to a lowering of the diastolic pressure than to an augmentation of the systolic pressure. The effect meant therefore really a relief for the heart, particularly when the blood pressure was abnormally high. He reported cases in which a quick effect was observed in grave cases of cardiac insufficiency. Dr. M. Bruhn-Faaraeus said that he had used the injections for more than a year. The effect was similar to that of digitalen and digitalis. It would, however, appear to be inferior to digitalen in bringing about diuresis. When properly made with a sterile solution the injections were without any danger. The results of the treatment justified further trial. Dr. E. O. Hultgren had observed in his own cases a rapid improvement of the subjective symptoms. A few hours after the injections an objective improvement could also be demonstrated, the pulse becoming fuller and regular, with the supervening increase of the blood pressure. Sometimes this good effect maintained itself for weeks. Dr. Israel Holmgren had from his experience received the impression that the intravenous injections of strophanthine proved active in exactly the same cases in which one was accustomed to expect an effect of the digitalis preparations, particularly in valvular disease. In cases of toxic degeneration of the heart muscle he had seen no effect whatever. In contradistinction to other speakers he had constantly observed a decrease of the pulse-rate. If, e.g., the pulse was about 150 before the injection it might be about 90 some ten minutes after the injection and remain unaltered for days. He thought that the injections were indicated in all cases where a rapid and strong "digitalis effect" was to be desired.

Status Lymphaticus and "Thymus Death."

At the same meeting a paper by Professor John Berg on a case of Graves's Disease complicated by Enlargement of the Thymus and death occurring shortly after operation gave rise to an interesting discussion on the nature of the so-called status lymphaticus and thymus death. Professor T. August Hammar said that the question was whether these cases of sudden death were due, directly or indirectly, to the thymus.

In a series of cases of sudden so-called thymus death the thymus gland was found enlarged. In another small series of cases thymopexia or extirpation of the thymus had more or less fully done away with the respiratory difficulties of which the patients were complaining. These two classes of cases suggested certainly that the thymus gland might have something to do with the sudden occurrence of death, as by pressure on the trachea or other important organs. But a possibly larger number of cases of "thymus deaths" in which the thymus gland was found of normal size or smaller than normal have been described. For these cases the pressure theory is not satisfactory, and other explanations have been proposed, assuming either a general "status lymphaticus," or the formation of unknown toxic substances acting directly on the heart. Professor Hammar thought that he could justify a theory which would hold good for all cases. It is probable that the thymus represents a gland with an internal secretion. Experience has shown that all glands of this description form one functional system, so that disorders in the function of one gland involve derangement in the function of one or more of the other glands. Still, unpublished researches have shown that the involution of the thymus is influenced by the sexual glands. Thus it would appear that early castration brings about a hyperplasia of the parenchyma of the thymus. But derangements of other ductless glands, for instance, of the thyroid, may cause a hyperplasia of the thymus. From recent researches of Yonsson it is known that inanition or insufficient nutrition causes an extremely rapid and thorough involution of the thymus gland. It is further a well-known fact that prolonged ingestion of thyroid substance produces rapid emaciation. Now certain unfinished investigations of Utterström show that this emaciation may be brought to a far more pronounced degree than that produced by inanition without affecting the thymus, which gland has even in some cases proved to be enlarged, as also the lymph nodes and other lymphatic organs. Professor Hammar thought it therefore possible that the derangement in the function of the thyroid in Graves's disease brings about alterations (perhaps of a toxic nature) of the general metabolism, and that it is these alterations which on one hand produce the anatomical anomalies comprised under the denomination "status lymphaticus," especially the enlargement of the thymus, while on the other hand they result in weakening or paralysis of the heart. He would, however, not commit himself to the statement that the thyroid was always the causative factor in status lymphaticus. On the contrary, many observations go to show that derangements in the function of other ductless glands may lead to the same result. As to the improvement observed after operations on the thymus, this could not invalidate his theory, as the operations might have acted beneficially in doing away with a greater or lesser part of the thymus tissue or in causing an altered blood circulation in the gland and thereby an alteration and improvement of its function. Dr. W. Wermstedt reported several cases of so-called thymus death and agreed to a certain extent with Professor Hammar's theory, as he thought that in many of these cases of sudden death the cause had not to be sought in an enlarged thymus but in certain radical alterations of metabolism.

The Surgical Treatment of Sciatica.

At a meeting of the Copenhagen Medical Society Dr. Alfred Pers read a paper on the Surgical Treatment of Sciatica. The method used by him with excellent results in 49 cases was removal of the perineural adhesions, as originally described by Crawford Renton. In the last 18 cases he had also, as a supplement to the operation, removed the adhesions in the sciatic foramen after Baracz' method. The immediate results were most satisfactory, the pain and other disagreeable symptoms disappearing at once in all of the cases. As to the remote results, he had been able to follow 42 uncomplicated cases. In these there had only been two recurrences. Several speakers discussed the treatment and expressed some doubt as to its efficacy or superiority to stretching of the nerve. Particular stress was laid upon the fact that the perineuritic nature of the supposed adhesions was not proved, nor was it likely that the adhesions would not form again in the course of the healing process. It was well known that many cases of sciatica might be cured by suggestion.

July 20th.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

The Twenty-fifth Anniversary of the Professorship of Dr. Julius Dollinger, Adviser to the King: an Appreciation.

Professor Dollinger is a man who is much loved and honoured by his own pupils and by his colleagues generally. Especially is this so since he has occupied his chair and since the medical world has known him for a man destined to raise medical science, and particularly surgery, in Hungary to the level of the rest of Europe—I may even say to some extent above it. He succeeded Professor Kovacs, the apostle of Hungarian surgery, and a man of such a reputation as made his successor's task no easy one. Professor Dollinger was chosen to fill Professor Kovacs's chair owing to the reputation which he had gained by his skill in operating for vesical calculi, for which patients have come to consult him from the other side of the world. He has proved well worthy of the inheritance and has mastered his art in a manner which was impossible to Professor Kovacs, who had not the advantage of the modern surgical and scientific armamentarium. His chief merit is his genius for teaching. He can utilise his vast clinical material for the benefit of his students in a masterly way. His spacious lecture room has never been empty and students have often forsaken other classes to hear Professor Dollinger's lectures. His method of teaching is worthy of a brief description. Every patient in his clinic is operated upon before his audience and is kept under observation by two to four students before and after the operation as long as he remains in the clinic. Should the patient die Professor Dollinger takes his students to the post-mortem room, as his principle is

Professor Dollinger.

to demonstrate the causes of failure as well as of success. At the end of each academical year he distributes among his students a year-book containing a printed collection of all the case-histories of the patients who have attended at his clinic. This is a valuable aid to the student in recapitulating what he has heard and seen during the year. As an examiner he is not a grim inquisitor of the candidate; he rather succeeds in tempering justice with mercy in a due proportion. Instead of being content with a hasty summing up of an unpromising candidate's knowledge he will examine him patiently for half an hour if necessary to find out what he does know. It is no wonder, then, that his past and present pupils as well as his professional colleagues have united in warmly celebrating the twenty-fifth anniversary of

his professoriate. The celebration has not been merely a medical one, for representatives of all branches of Hungarian science have taken a part in it. In addition to the formal speeches and written addresses Professor Dollinger was most agreeably surprised at the appearance of a special illustrated edition of the *Orvosi Hetilap* (the oldest and leading medical paper of Hungary) which was wholly written by his pupils. This number contains 25 dissertations from the pen of the foremost surgeons of Hungary. Surgery owes three important operative procedures to Professor Dollinger. The first is his modification of the operation for unreduced dislocation of the shoulder. The second is the subcutaneous extirpation of the cervical glands in young women which leaves no disfiguring scars on the neck. This operation consists of making an incision on the hairy part of the scalp at the back of the neck. The skin is undermined until the glands are reached, and these are easily grasped and brought out with an instrument specially devised for the purpose by Professor Dollinger. This operation, of course, can only be performed on glands which have not broken down. His third chief claim to surgical distinction is his simplification of the operation for extirpating the Gasserian ganglion, which he performs without tying the middle meningeal artery. He has also invented several surgical instruments, bandages, and plaster appliances. His corsets for scoliosis are well known, as are his bandages for fractured lower extremities. In 1902 he addressed a circular to all medical men in Hungary asking their aid in the compilation of the cancer statistics for the country; these were published last year simultaneously in the Hungarian, German, and French languages. In 1905 at the Surgical International Congress at Brussels, Professor Dollinger was asked to act as referee on the cancer problem. He has received invitations from many foreign surgical societies to deliver addresses. He is intrusted with the compilation of the programme of the cancer section of the second congress to be held this year in Brussels. Two years ago he wrote the chapter on Dislocation of the Hip in Dr. Joachimsthal's "Orthopædic Hand-book." His merits have gained recognition in the highest quarters, for last year His Majesty Francis Joseph granted him the title of "Adviser to the King" (Hofrath).

July 20th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Sewage Disposal in India.

ATTEMPTS have been made from time to time during the last 10 or 12 years to introduce some satisfactory form of biological installation for the inoffensive and safe disposal of sewage in India. Septic tank installations have been under trial at Calcutta, Simla, Matunga Leper Asylum, Bombay, Poona, Meerut, and other stations, the three former being under the civil sanitary authorities and the latter under the military. In all cases the quality of the effluent has fallen far short of British standards of purification, and in no case has the effluent reached such a standard of purity as that demanded by the Public Health Acts of the United Kingdom before it could be turned into a potable stream. Fortunately, in most cases ample suitable land is available to absorb the effluent and the ultimate sewage disposal may thus be regarded as satisfactory, from 90 to 99 per cent. of intestinal organisms being destroyed in the tank. The comparative biological failure of these installations, judged by British standards of purification, may be attributed to the inexact conditions under which these installations have been working or to the want of subordinate skilled supervision, or to the different climatic conditions under which they work in the tropics, or to the higher fæcal concentration (of three gallons in the tropics against a usual civilian minimum of 25 gallons per head per diem in England). Again, in some instances the actual delivery of sewage has not coincided with that estimated for, while variations in the composition of the garrison, with consequent variations in the composition and amount of sewage, have disturbed the working of the tanks, notably those at Poona and Meerut military cantonments.

Apparently all the difficulties which have been experienced in connexion with the biological disposal of sewage have been traceable to failure of the aerobic filter-beds. The same high standards of chemical purification as are required in the United Kingdom to fit an effluent for discharge into a potable stream are not required under Indian conditions where an effluent can be safely disposed of without the risk of polluting water-supplies. Aerobic filtration gives little added security against specific diseases but merely raises the effluent to what is regarded as an unnecessarily high standard of chemical purification, taking local conditions into account. Passage through the closed septic tank (anaerobic) alone breaks down the solids in the sewage and the tank effluent is fit to run directly on to land without the intervention of an aerobic filter-bed. It is thought that if aerobic filter-beds could be dispensed with in India the problem of sewage disposal would be greatly simplified and financial expenditure reduced and less skilled supervision would be required. In South Africa this system of sewage disposal by treatment in anaerobic tanks with subsequent land treatment of the tank effluent has been experimentally tried for over a year at the station hospital, Roberts' Heights, Pretoria, and recent reports state the results as satisfactory, with no nuisance. The aerobic filters there were left out in the installation and the anaerobic tank effluent is run directly on to land. Another military installation situated at Pretoria itself was not so satisfactory and gave rise to complaint. In this case the effluent was not land-treated but discharged into a non-potable stream. This effluent was only classed as fair owing to structural defects in the installation, whereby the sewage passed too rapidly through the tank. This tank has now been altered to allow a 12 to 18 hours' contact in the anaerobic tank, and so as to insure better aeration the outer concrete and masonry wall of the aerobic filter have been removed and replaced by large clinkers. It will be interesting to hear the result of these structural changes which are at present under investigation.

Experiments which are being carried out at Meerut show that the plant for such biological installation as has been constructed there can be put up at a cost of from 1*s.* 4*d.* to 2*s.* per head, and that the working expenses, except where water is expensive, are less than for trenching, while in the plains water can always be raised by bullocks from wells at 4*d.* per 1000 gallons, and that there is every reason to believe that the return obtained from cultivation of the irrigated land will give large profits, whereas that obtained from trenching in most stations is a negligible quantity. In Meerut the septic tank saved in carriage, &c., in one regiment alone (the 17th Lancers) 356*s.* per annum. Another source of economy in biological installations in India will be that of reduction of the cost of carriage of night-soil, &c., from cantonments; whereas trenching should not be carried out nearer to the inhabited area of cantonments than three miles, the biological installations can be constructed at no great distance. The chief difficulty in India will generally be the scarcity of water. In Meerut three gallons of water per head are added to the percolating filter, the area of which, though proportional to the population dealt with, is considerably less than that usually allowed.

Cholera at Peshawar.

For about three weeks now there have been no further cases of cholera amongst British troops in Peshawar. Lieutenant R. H. Bott, I.M.S., and some 10 or 11 other cholera patients who contracted the disease during the recent epidemic are now all convalescent. The medical staff and nursing orderlies employed in the cholera hospital have been most attentive and special mention in particular has been made of the devotedness to duty of Captain L. Humphry, R.A.M.C. The Royal Munster Fusiliers had a remarkably trying time out at Shabkadar, owing to cholera; it is understood that they had some 42 cases with 37 deaths. In Peshawar itself also eight of the Munsters were buried. With regard to this regiment, it is pathetically sad to note that in the Church of England burial ground at Peshawar there is erected a large memorial cross, having inscribed on it the names of all those of their other battalion (known as the 104th Bengal Fusiliers) who died at Peshawar from cholera in 1869. When the Munsters recently came to Peshawar as part of the Mohmand Field Force many of the men wandered over to see the memorial cross and read the names of their deceased predecessors, little thinking that a few days later their own battalion was

going to be so severely smitten by the hand of death. In the Church of England records at Peshawar there is a long note by the Rev. Mr. Adams, V.C., who was chaplain of Peshawar in 1869, concerning the cholera epidemic. The minute states that cholera broke out on Sept. 11th and raged until Nov. 2nd, during which period there died from cholera 33 men, six women, and seven children of the Royal Artillery, 112 men, five women, and ten children of the 36th Regiment, and 66 men, three women, and eight children of the 104th Fusiliers (the other battalion of the Munsters). Seven other residents of Peshawar also died from cholera, making a total of 257 European deaths from cholera alone from Sept. 11th to Nov. 2nd, 1869. The Rev. Mr. Adams received the thanks of the Government of India on this occasion for his zeal and devoted work. The next great outbreak of cholera at Peshawar was in the year 1879 at the time of the Afghan War. During this epidemic deaths from cholera are continuously notified in the various burial registers between May 15th and Sept. 15th of that year. Deaths from cholera were also reported at Cherat, the hill station for Peshawar. There can be no doubt whatever that cholera has largely disappeared amongst the European population of India in recent years, owing to the greater attention and improvement as to drinking-water supplies. In the recent epidemics at Peshawar there is no doubt that the death roll would have been very much heavier but for the present system of sanitation in the army, which was in full working order both in the field and at the base of operations. The present epidemic is thought to be due to fruit and vegetables sprinkled with any kind of water in the endeavour to keep up an appearance of freshness and fitness for sale. The first thing that all people should do in the face of a cholera epidemic is to avoid purchasing or eating fruit or vegetables that cannot be subjected to the closest scrutiny and supervision.

Deaths from Poisoning.

One of the most remarkable results of a long series of statistics carried on from year to year is that it gives with extreme accuracy the power of predicting the extent of occurrences based in themselves on the most capricious and incalculable motives. Nothing would appear less susceptible of reduction to accurate numerical statement than the incidence of crime. The passions and motives which actuate the poisoner might be expected to be of a nature to defy any general expression, yet the report of the chemical examiner to Government in the Punjab shows that an extraordinary regularity exists in the recurrence of poisoning. At the commencement of every year it can be foretold with certainty that at least 200 persons will be done to death with poison during the ensuing 12 months. Looking back through a long series of years a rhythmical ebb and flow in crime is also manifested; maxima occur about every ten years, but it is curious that all attempts to connect these maxima with general social conditions, as, for instance, famine, have failed. Another point of interest brought out by the report is that the popular idea about the subtlety of Eastern poisons is a myth; the Indian poisoner knows nothing of the poisoned glove or book or bouquet dear to Dumas, or of the ring of the Borgias; his methods are crude in the extreme. Immense doses of white arsenic, coarsely powdered, are among the commonest means employed to remove the victim. Road and rail dacoity introduces a slight element of romance, though much inferior in interest to the classical methods of the thug. There are still persons who introduce themselves to travellers towards nightfall and if on the road accompany them to the halting place and generously offer to provide the evening meal. They then mix powdered *datura* seeds with the bread which they set before their new friends; in half an hour the victims are wildly excited and in an hour insensible, robbed of all they possess, and next morning very often dead, as the dacoit does not calculate his dose with any special care. Suicide by opium and accidents from the excessive use of Indian hemp are a steady and important item in the total of cases of poisoning each year. More refined poisons, such as strychnine, aconite, and kaner, appear in only a small number of cases, but they recur year after year with marked regularity.

In addition to cases of poisoning, much work is done in the recognition of blood stains in cases of murder by violence, and this is perhaps the least satisfactory part of the output, for up to the present it has been found practically impossible to introduce the modern refinements by which human blood can be distinguished with certainty. The medico-legal work for which the chemical examiner primarily exists is supplemented by a mass of general analysis of the most various description. Every department appreciates the advantages of skilled chemical advice, with the result that waters, spirits, munitions, foods, and drugs are constantly being referred, and this class of work forms the really heavy part of the chemical examiner's duties; medico-legal analysis runs on simple lines and is limited to the comparatively small number of poisons in general use, but the miscellaneous analysis is of the most various and complicated nature. It is not etiquette to make the annual report of a department the medium for airing grievances, but the chemical examiner has been moved to point out the difficulty of retaining manual servants on the entirely insufficient pay sanctioned by Government and to complain that his representations on this matter have been rejected. Considering the importance of the duties that these men have to perform and that an amount of intelligence is expected from them very far above that which is required from the ordinary menial, it seems a pity to spoil the smooth running of a complicated and important machine for the sake of a little oil to keep some of the subordinate yet essential parts in good working order.

June 25th.

NOTES FROM CHINA.

(FROM OUR OWN CORRESPONDENT.)

Small-pox and Vaccination.

IN continuation of the remarks in my last communication as to the increasing success in regard to vaccination of the efforts made by the Shanghai health officer (Dr. A. Stanley) it might interest the members of the Antivaccination League at home to know that the vaccination sub-stations recently established in different quarters of Shanghai have proved most useful and popular. 1891 vaccinations have been done during the month of April and Chinese mothers are showing themselves quite eager to submit their infants to the process. As a corollary the health officer is able to report that small-pox has diminished almost to vanishing point in Shanghai. Much of this success is to be attributed to the system whereby the health inspectors have a knowledge of Chinese and so are able to get into direct touch with the people. It would be well if these English methods could be extended further afield, as sporadic cases of small-pox, every now and then developing into an epidemic, are being constantly reported from various parts of the empire. A correspondent writing from a province in Mid China says: "A recent tour in the three divisions of this prefecture confirms the report that a severe epidemic of virulent small-pox has left great gaps in the population and is only now abating. Most of the victims were young people." He adds that malarial fever instead of subsiding through the winter months has continued right through from last summer in a severe form and has carried off great numbers.

Removal of the Gasserian Ganglion.

As the tendency of late in neural surgery has been somewhat against this operation,[1] and as the mortality following extirpation is still rather a high one, the following notes of a successful operation done in Peking by Dr. E. R. Wheeler of the Union Medical College, Peking, will be of interest as showing the complete relief afforded in a chronic and obstinate case. The patient was a Lama priest from Mongolia who had suffered from severe facial neuralgia of the epileptiform type for over six years. The attacks were frequent and acute, as many as 120 being counted in one day in spite of bromide and chloral treatment. The pain started in the lower jaw and spread downwards as far as the clavicle and up to the top of the head. The slightest touch, draught, or eating food which was too hot or too cold brought on an attack, during which the whole of the right side of the face and the right platysma were violently convulsed, the patient grasping his face with both hands and rubbing it violently. All the teeth in the right upper jaw were missing. He said they had dropped out. It was

[1] Vide the review by Moschowitz of New York in the Medical Record, Sept. 29th, 1907.

decided to remove the ganglion and the Hartley-Krause omega skin-flap was marked out above the zygoma and turned down, the ear and eye having been previously sewn up. The tendon of the temporal muscle beneath the zygoma was cut and that muscle with its fascia was turned up and the bone exposed. The periosteum was stripped from the bone over the whole area of the wound and a ¾ inch trephine was applied just above the posterior end of the zygoma. From this opening the bone was cut away in all directions by rongeurs, special care being taken to get as low down as possible behind the zygoma. In working towards the anterior inferior angle of the parietal bone the anterior branch of the middle meningeal was seen lying on the dura mater and could be traced to its canal in the bone which was left undisturbed. Superiorly the bone was removed as high as the temporal crest. On gradually stripping up the dura mater and lifting up the brain the middle meningeal could be seen coming through the foramen spinosum with the third division of the fifth nerve passing through the foramen ovale just in front. By inserting his finger Dr. Wheeler could easily feel the position of the ganglion on the petrous bone, but it was not possible to see the place on account of the overlapping of the temporo-sphenoidal lobe. The second division of the nerve was then found passing through the foramen rotundum and cut through at its exit from the skull; the third division was treated in the same way and their peripheral ends were tucked away into their respective foramina. The dural sheaths of these two branches were next opened up and they were traced to their point of common origin. On account of the view being blocked by the temporo-sphenoidal lobe, as already noted, it was impossible to remove the ganglion as a whole but the point of junction of these two nerves was picked away piecemeal. The temporal muscle was then turned down and fastened to its lower part, the skin was closed by continuous suture, and a small drainage-tube was left in for 48 hours, by which time the patient was feeling very well and had quite lost all his symptoms. The operation lasted four hours. Eight days afterwards the stitching was removed and the wound quite healed. Sensation seems to be quite lost over the malar bone and buccinator muscle and is very much lessened over the lower jaw. The patient has entirely lost his pain and does not mind his face being pinched or pulled about. Perhaps the chief point of interest in the case was the violence of the muscular action during an attack. The whole face was much distorted and drawn over to the right, the lower jaw worked up and down, while at the same time the platysma was thrown into violent contraction, its fibres standing out most markedly. With all this there was very little flushing of the face or watering of the eye. It might have been possible to obtain a better view of the ganglion had more bone been removed in an upward direction, thus allowing of more retraction of the temporo-sphenoidal lobe. The presence of the zygoma seemed to interfere very little; in fact, it was hardly noticed. During the operation the posterior branch of the middle meningeal artery caused a little trouble but the hæmorrhage was soon stopped by pressure.

Creation of a Spa for North China.

For some time past it has been known that there was a region in the Tangshun Hills in the north-east of the province of Shantung where there are various hot and sulphurous springs. It is now proposed to erect some modern hotels and foreign residences there in order to take advantage of the medicinal properties which these waters possess. Some of the springs are of a high temperature, boiling violently at the surface, and large volumes of steam are to be seen issuing from them. No definite quantitative analysis is yet to hand but some of the springs are known to contain large proportions of sulphur, saltpetre, and iron. The spa only awaits being taken in hand by a competent medical authority to become of distinct use to many Europeans who can neither afford the time nor the expense of a journey to Europe to undergo a "cure."

June 10th.

MEDICAL MAGISTRATES.—Mr. William Stanger, F.R.C.S. Eng., &c., and Mr. Francis Henry Wood, L.R.C.P., L.R.C.S. Edin., have been appointed justices of the peace for the city of Wakefield.

Obituary.

SIR JOHN BANKS, K.C.B., D.Sc. R.U.I., LL.D. GLASG., M.D. DUB., F.R.C.P. IREL.,

PHYSICIAN-IN-ORDINARY TO THE KING IN IRELAND; DEPUTY LIEUTENANT; CONSULTING PHYSICIAN TO SIR PATRICK DUN'S HOSPITAL, ETC.

WE regret to announce the death of Sir John Banks which took place at his residence, 45, Merrion-square, Dublin, on July 16th, to the sincere grief of everyone who knew him, a feeling which will be widely shared by the medical profession of the kingdom, for he has been for more than half a century among the acknowledged heads of the medical profession in Ireland.

Sir John Banks was the son of Dr. Percival Banks o county Clare and was born in London, but the exact year of his birth seems to have escaped record, or rather the record is missing. He was educated at Trinity College, Dublin, which he is said to have entered in 1831, and if it is correct that he matriculated just previously to coming of age he must have been at least 97 years old at the time of his death. We believe, however, that he was some four or five years younger. In 1843 he took the degree of M.D. with distinction, having already shown in taking his arts degree that he was a more than ordinarily accomplished student. In the following year he was elected a Fellow of the Royal College of Physicians of Ireland, on the books of which corporation his name has for many years been the senior, and he became President from 1869 to 1871. As a member of the Senate of the Royal University of Ireland he at one time represented the University on the General Medical Council and was corresponding member of the Harveian Society and the Edinburgh Medical and Chirurgical Society. He was the first President of the Royal Academy of Medicine in Ireland, was elected physician-in-ordinary to the King in Ireland, and had held the position of President of the British Medical Association. He was ex-Regius professor of physic in the University of Dublin and consulting physician to Sir Patrick Dun's Hospital, City of Dublin Hospital, Coombe Hospital, and the Victoria Eye and Ear Infirmary.

As one of the leading physicians in Ireland Sir John Banks enjoyed a very large and extensive practice and his opinions as an alienist always received the profound attention which they certainly merited, more especially as he was one of the first to recognise the value of hygiene and fresh air in this connexion. He several times refused the offer of knighthood from the late Queen Victoria, but in 1889 he was made a Knight Commander of the Bath. Referring to his refusal of a knighthood the *Times* recalls the fact that on one occasion *Punch* attributed to the late Sir John Banks the laconic telegram, "Declined with thanks, JOHN BANKS." His contributions to the literature of the profession included a paper, "Loss of Language in Cerebral Disease," and a contribution on a "Peculiar Discolouration of the Skin in Females," both of which appeared in the *Dublin Journal of Medical Science* some 40 or 50 years ago. In the same journal in the year 1868 he published the "Writ 'de Lunatico Inquirendens' in the case of Jonathan Swift," in which he shows from legal evidence that in 1741 Dean Swift was found to be "a person of unsound mind and memory and not capable of taking care of his person and fortune."

Sir John Banks married Alice, daughter of Captain Wood Wright of Golagh, who died in 1899, and the only child of the marriage, Mary, married the Hon. Willoughby Merrik Campbell Burrell in 1873, and died in 1898. Her daughter is Sir John Banks's only living descendant. Sir John Banks enjoyed a position in the medical profession which will not easily be supplied. He was a leader in the scientific and social worlds at the same time, and carried on the ancient tradition of culture blended with learning, which a busier and more materialistic age is teaching us to dispense with. He was a famous entertainer and a witty talker, as has been pointed out in the numerous obituary notices which have already appeared of him. All the Irish Viceroys of the last 50 years have shared his hospitality. Despite his great age he retained his memory to the end, and a writer in the *Times* has recalled that in 1848 Lord Clarendon, then Viceroy, told Sir John Banks that he would be the last Lord Lieutenant of Ireland as on the following day Lord John Russell was to introduce a Bill for the abolition of the office, while 37 years later Lord Carnarvon made a similar statement to him.

Medical News.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS OF EDINBURGH AND FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—At the recent examinations held in Glasgow for the triple qualification of these coöperating authorities the following candidates passed their respective examinations:—

First Examination.—John Miller Chrystie, Glasgow; and William Ifor Jones, Talgarth.

Second Examination.—John George Buchanan, Glasgow; Alan Ross Henry, Cape Colony; James M'Cusker, Glasgow; Manec Bomanji Motafram, Bombay; Francis Patrick Quirk, New South Wales; Morris William Rees, North Wales; John Boyd Michie, Alva; Ernest Wardman Wilburne, Glasgow; and Sparke Hughro Noble (four years' course), Glasgow.

Third Examination.—Ulick Joseph Bourke, Hamilton; George Edward Carto, British Guiana; Robert Miller Danks, Lenzie; Richard John Helsby, Glasgow; and Reginald Andrew Hosegood, Swinton.

Final Examination.—Ormonde Rashleigh Belcher, Liverpool; George Edward Carto, British Guiana; Archibald Randolph Fulton Douglas, Greenock; Alexander Baxendale, Bolton; Andrew Downie Macfie, Port Bannatyne; Probhat Chandra Mukherji, Edinburgh; Harold Hilton Bradley, Birkdale, Southport; Anath Nath Palit, Edinburgh; Robert Roberts, North Wales; Robert M'Connell Blair, Crookston, Paisley; Charles Homer, London; D. Das Gupta, Calcutta; and Kenneth James Logan Bannerman, High Wycombe, Bucks.

UNIVERSITY OF LIVERPOOL.—The following are the successful candidates in the July examinations for medical diplomas granted by the University:—

Diploma in Tropical Medicine.—Gilbert Stewart Crawford, L.R.C.S. & P. Edin., D.P.H.; Kaikhusroo Rustomji Dalal, L.M. & S. Bombay; Cecil Maurice Goodbody, L.R.C.P., M.R.C.S.; John Macgregor Smith, M.B., Ch.B. Glasg.; and Samuel Wilson McLellan, M.B., Ch.B. Liverp.

Diploma in Public Health.—John Patrick Joseph Murphy, M.B., B.Ch., B.A.O. R.U.I.

UNIVERSITY OF LEEDS.—At examinations held recently the following candidates were successful in the subjects indicated:—

SECOND EXAMINATION FOR THE DEGREES OF M.B., CH.B.

A. L. Bastaple, H. Caplan, L. Dunbar, C. J. H. Little, G. E. Macvie, F. L. Nunneley, H. S. Raper, W. Robinson, J. B. Sinson, J. P. Walker, T. L. Walker, R. Ward, F. Wigglesworth, and B. F. W. Wood.

FINAL EXAMINATION FOR THE DEGREES OF M.B., CH.B.

J. H. M. Frobisher (distinction in obstetrics), G. A. C. Mitchell (first-class honours), and G. C. H. Nicol.

Part I.—H. L. Flint, S. M. Hepworth, J. P. Musson, B. C. Piercey, W. Shaw, R. E. Smith, and J. N. L. Thoseby.

FIRST PROFESSIONAL EXAMINATION FOR DIPLOMA IN DENTAL SURGERY.

J. Rushton.

FINAL EXAMINATION.

Part I.—E. Howden and F. C. Wilson.

UNIVERSITY OF DURHAM.—At examinations for the degree of Bachelor of Medicine held recently the following candidates were successful:—

FIRST EXAMINATION.

Elementary Anatomy and Biology, Chemistry, and Physics.—Evelyn Amy Constable, London School of Medicine for Women; and Joseph Wilfrid Craven and Frederick Joseph Henry Tobias Frere, College of Medicine, Newcastle-upon-Tyne.

Chemistry and Physics.—Fife Appleton and William Leitrim Clements, College of Medicine, Newcastle-upon-Tyne; Herbert Grantham Dodd, Guy's Hospital; Norman Hodgson, James Kerr, Francis James Lidderdale, Andrew Govan McFarlane, John George Ogle, and Arthur Patterson, College of Medicine, Newcastle-upon-Tyne; Lionel Glover Pearson, University of Leeds; and Ivan Miller Pirrie, Charles Henry Robson, William Arthur Slater, Thomas Copeland Storey, and Samuel Knibb Young, College of Medicine, Newcastle-upon-Tyne.

Elementary Anatomy and Biology.—Edgar Babst, Philip Gunn, Herbert Joseph Shanley, and Andrew Smith, College of Medicine, Newcastle-upon-Tyne.

SECOND EXAMINATION.

Anatomy, Physiology, and Materia Medica.—Everard Cecil Abraham, John Bain Alderson, John Hamilton Barclay, Richard Murray Barrow, Michael Brennan, Roger Errington, Eric Lawrence Hancock, and Thomas Albert Hindmarsh, College of Medicine, Newcastle-upon-Tyne; John Robert Dunn Holtby, Queen's College, Belfast; and William Hudson, Harold Llewellyn James, Frank Hutchinson Kennedy, Hubert Vere Leigh, Eva Lumb, John Lumb, Arthur Hyde Wear, and Thomas Ruddock West, College of Medicine, Newcastle-upon-Tyne.

DONATIONS AND BEQUESTS.—The following bequests were made under the will of the late Mrs. Anne L. R. Waldo-Sibthorp, who left estate of the gross value of £145,029:—£20,000 to the Royal Hospital for Incurables, Putney, for or towards an extra building to be named after her late husband, Major-General Edward William De Lancey Lowe, C.B., with a view to perpetuate his memory; £6000 upon trust for the Naval Hospital at Haslar in memory of her late husband, Commander George Harry Richard Erroll; and £10,000 to the Charing Cross Hospital in memory of her late husband, Colonel Francis Richard Waldo-Sibthorp, to endow ten beds. After other legacies and bequests, Mrs. Waldo-Sibthorp left the residue of her estate upon trust for the West End Hospital for Diseases of the Nervous System, Paralysis, and Epilepsy, for the building and endowing of a new ward in the hospital in memory of her husband, Major-General E. W. De Lancey Lowe, C.B., and herself.—Lord Denbigh, chairman of the Royal National Orthopædic Hospital, has received a cheque for £100 from Lady Wantage as a donation towards the special appeal fund for rebuilding the hospital.

VACCINATION GRANT.—Mr. J. D. Staple, the public vaccinator for the Ashley district of the Bristol union, has been awarded the Local Government Board grant for successful vaccination for the sixth consecutive occasion.

THE ASSOCIATION OF BRITISH POSTAL MEDICAL OFFICERS.—The annual dinner of this association was held at the Whitehall Rooms, Hôtel Métropole, on July 14th, under the chairmanship of the President, Dr. George A. Mason. The Postmaster-General was the chief guest, and amongst a distinguished company were Sir H. Babington-Smith, K.C.B., the Hon. Sir Schomberg McDonnell, K.C.B., Sir Robert Hunter, Sir Thomas Barlow, Sir John Batty Tuke, M.P., Sir Henry Cotton, K.C.S.I., M.P., Sir Dyce Duckworth, Surgeon-General Sir Alfred Keogh, K.C.B., Sir William Bennett, K.C.V.O., Sir James Crichton-Browne, Mr. J. Henniker Heaton, M.P., Dr. V. H. Rutherford, M.P., Inspector-General James Porter, C.B., R.N., Mr. S. A. M. Ogilvie, Dr. A. Rolland Rainy, M.P., Sir Thomas Roe, M.P., the Hon. R. D. Denman, Colonel Price, Mr. T. P. Barnard and other prominent Post Office officials, Mr. C. A. Ballance, Dr. T. M. Legge, Mr. P. J. Freyer, Dr. E. Hooper May, and a large number of members of the association, including Dr. R. H. Giddings, the honorary secretary. No less than ten toasts were given after dinner, these being interspersed with vocal music by Miss Annie Bartle, Mr. Herbert Emlyn, and "Mr. Auscul Tate." The toasts included "Our Empire Beyond the Seas," given by Mr. J. Walton, M.P., and responded to by Sir Henry Cotton, M.P.; "The Houses of Parliament," given by Sir Thomas Barlow and responded to by Sir Thomas Roe, M.P.; "The Right Hon. Sydney Buxton, M.P.," proposed by the Chairman; "Our National Finances," proposed by Mr. Henniker Heaton in a statistical speech and responded to in a very happy vein by Mr. W. Blain, C.B., of the Treasury; "The Post Office," proposed by the Right Hon. Eugene Wason, M.P., and responded to by Sir H. Babington-Smith; "The Association of British Postal Medical Officers," proposed by Sir Dyce Duckworth and responded to by Dr. J. Walton Browne; "Medical Science," proposed by Mr. A. H. Norway and responded to by Sir James Crichton-Browne; and "Our Guests," given by Mr. Denis I. McVeagh and replied to by Sir William Bennett and Mr. Robert Bruce. In proposing Mr. Sydney Buxton's health the Chairman referred to the work of the Hobhouse Committee and paid a tribute to the patience, industry, and skill with which the Postmaster-General was dealing with its recommendations, and also to the sympathy with which he had met the views of his medical officers which had received scanty consideration from the committee. Those officers were in the difficult position of serving two masters, the Post Office officials and the members of its staff whom they had to treat. Mr. Sydney Buxton, in reply, said that they did so with satisfaction to both and that there had been a great increase in the numbers of the staff attended by them recently. He was on occasion ready to defend his medical officers from being condemned by questions in the House of Commons or otherwise before charges made against them had been fully inquired into. The Post Office medical staff rendered great service in such inquiries as concerned telegraphists' cramp and injury caused to telephone operators by their calling. Referring to the danger recently attributed to public telephones he considered that it was being adequately met by disinfectants and other means.

LIVERPOOL CONVALESCENT INSTITUTION, WOOLTON.—The thirty-fourth annual meeting of the friends and supporters of the above charity took place on July 11th in the picturesquely situated home at Woolton. The Lord Mayor (Dr. Richard Caton) presided over an influential and representative gathering. The total number of patients admitted in 1907 was 2934, an increase of over 400 on the year 1897. The Lord Mayor, in moving the adoption of the report and accounts, said that it gave him great pleasure to be present that afternoon and to see the magnificent institution. It was particularly interesting to him as he had known the institution since its erection, and every room in it was familiar to him from frequent visits and also from the fact that he had sent hundreds of patients there when he was physician to the Royal Infirmary and the Northern Hospital. It was very important that the work of the hospitals should be supplemented by the removal of the patients from the air of the towns to the pure air of the country at the time when convalescence was commencing. When he was a hospital physician he always got his patients so far as possible to come back and to see him at the hospital after their period of residence at the convalescent institution. He was quite sure that it was one of the very best of the Liverpool charitable institutions. He congratulated the council upon the admirable condition in which the institution was maintained. He observed with pleasure the beautiful state of the grounds environing the home.

THE FRED REYNOLDS MEMORIAL.—At a meeting of the "Fred Reynolds Memorial Committee" held in Leeds on July 13th, Mr. W. M. Gabriel of Keighley being in the chair, final arrangements were made in regard to the disposal of the fund. A sum of just over £140 has been contributed by 150 subscribers. Already £40 have been invested in aid of the Leeds Children's Summer Holiday Fund, the interest being sufficient to send two poor children away for a country holiday of a fortnight every year. It was further resolved to grant £85 to the Leeds Poor Children's Holiday Camp Association to pay for the erection of a new dormitory to accommodate 40 children at Arnside Seaside Camp to be known as the Fred Reynolds Memorial Wing. Besides this there will be the expense of a brass memorial tablet and a portrait to be erected inside the building. The association has given an undertaking as to reasonable permanency and maintenance and the extension, now practically finished, will be brought into use almost at once as it is urgently needed. It is proposed to have an informal unveiling of the tablet and portrait in a few weeks' time and when all arrangements are completed a printed statement is to be issued to all subscribers, together with a list of names of such contributors. Any balance left over is to be added to the grant mentioned. The final arrangements are in the hands of the chairman and the honorary secretary, Mr. W. H. Scott, Roundhay, Leeds.

THE HOSPITAL SATURDAY FUND, BIRMINGHAM.—At the annual meeting of the board of delegates of the Hospital Saturday Fund Sir Hallewell Rogers took the chair for the first time and announced that another record in association with the fund had been made. The total sum raised last year was £20,013 and the number of contributing firms was 2045. This year, up to the time of the meeting, the total sum received was £20,042 from 2062 firms. The chairman pointed out that it would be necessary that they should continue to make records, for their expenses were continually increasing as their work extended. Even during the past half-year the number of patients received at the convalescent homes had increased by 12 per cent., and their other institutions had also been called upon to deal with increasing numbers of patients. More particularly during the past year increased attention had been devoted to rheumatic and consumptive patients. As regards the latter he (the chairman) thought there was a necessity that they should endeavour to raise funds to establish a hospital of their own for their treatment, and he looked upon the present moment as being particularly favourable in connexion with the fund for a memorial to the late Sir William Cook. He was of the opinion that the work already done in the treatment of consumptives gave great promise, but the city's home could not possibly deal with more than 5 per cent. of the cases in Birmingham, and he suggested that a memorial hospital capable of dealing with a further 10 per cent. should be established by the Hospital Saturday Fund. Such a hospital would cost £10,000. Towards that sum they had already £2000 and great hopes of another £2000, and as regards the remainder he suggested that the best way to get it would be to ask the subscribing firms not only to give their 1*d.* a week to the Fund but also from now to Christmas an extra 1*d.* a week to the Sir William Cook Memorial Hospital Fund.

THE ADMINISTRATIVE CONTROL OF PULMONARY TUBERCULOSIS IN SCOTLAND.—The Scottish Local Government Board in 1906 issued a circular to all local authorities under its control with a view to assist them in developing and completing their administrative control of pulmonary tuberculosis. In that circular it is pointed out that pulmonary phthisis is an infectious disease within the meaning of the Public Health (Scotland) Act, 1897, that the sections of that Act applicable to other infectious diseases are applicable to pulmonary phthisis, and that the statutory obligation resting on the local authority to deal with and to control infectious disease extends to pulmonary phthisis. A new circular has been issued recently by the Board detailing for the information of local authorities who have taken no steps in the matter the measures which other authorities have taken in providing accommodation for the treatment of the disease and stating which of them have adopted the system of notification. The Board now recommends that such a system should be adopted without delay by every local authority and looks with favour upon proposals to add pulmonary phthisis to the disease notifiable under the Infectious Diseases (Notification) Act, 1889. It claims that the Public Health (Scotland) Amendment Act of 1907 empowers local authorities to adopt notification for this disease and to administer the system without hardship to the individual. It further recommends that endeavours should be made to treat the disease in spare wards of infectious diseases hospitals, as has been done already in Lanarkshire, in sanatoriums, for the erection of which groups of local authorities may combine, and by dispensaries, after the model of the Municipal Dispensary in Dundee. It emphasises the necessity of carrying out systematic disinfection and the exercising of rigid control over general sanitary measures, for "good sanitation and direct prevention should go hand in hand." The Board notes with satisfaction that in the majority of cases where voluntary notification has been adopted the usual notification fee of 2*s.* 6*d.* is paid to medical practitioners.

UNIVERSITY COLLEGE, LONDON.—The new physiological laboratories that are being built through the generous assistance of Dr. Ludwig Mond and Dr. Aders Plimmer are making rapid progress and will probably be ready for occupation early next year.—Arrangements have now been completed for two courses in school hygiene to be held next session under the direction of Professor H. R. Kenwood, assisted by Dr. H. Meredith Richards and others. The first course, beginning in October and lasting until March, will be held on Friday evenings at 7.15 and will be organised to meet the needs of school teachers. The second course, beginning early in 1909, will deal with school hygiene and medical inspection of scholars, and will be arranged to meet the needs of medical men.—Mr. G. C. Mathison, M.B., B.S., has been appointed to the Sharpey research scholarship in physiology.

ROYAL MATERNITY CHARITY.—The annual tea for the nursing staff (midwives) of the Royal Maternity Charity of London (founded 1757) was held at the Eustace Miles Restaurant in the afternoon of July 16th. The secretary, Major Lionel Killick, in bidding them welcome, said that the work of the nurses of the charity was published to the world annually in the dry statistical reports, but the real work of the nurses (who were all trained midwives) in their districts covering the whole of London from Fulham to Bow, and Harlesden to Tottenham, was not published. Few except those on the office staff knew of the nature of their work, how they were always on duty, going fearlessly into the vilest slums in all weathers, and often giving out of their own small earnings food and even clothing to their poor patients. The secretary ventured to think that a kindlier, smarter, or cleaner body of nurses, all thoroughly equipped, wearing one uniform, and working for one beneficent object, it would be difficult to find. Dr. Septimus P. Sunderland in offering the thanks of the assembly to Major and Mrs.

Killick for their generous hospitality, said it was a matter for congratulation that Dr. Henry Gervis and Dr. G. E. Herman, who had both formerly been acting physicians to the charity, had recently resumed their connexion with the charity in the capacity of honorary consulting physicians, and that Dr. H. Russell Andrews had been appointed an extra acting physician. He referred with gratitude to the strenuous and unceasing efforts of Major Killick in raising the standard of the work of the nursing staff to the highest point of efficiency.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Infant Life Protection (No. 2) Bill.

AN important amendment from the point of view of medical men has been introduced into this Bill by a Standing Committee of the House of Commons. The Bill as originally drafted provides that any person who shall wilfully destroy the life of a child during its birth shall be guilty of felony and liable on conviction to penal servitude for life. The objections to such a provision as that applied to medical men in the course of their ordinary professional work are obvious. Lord ROBERT CECIL, who is one of the promoters of the Bill, had an amendment to meet this case on the notice paper. It provided that "no offence shall be committed under this Act if a medical man destroys a child during birth for the purpose of saving the life of the mother." Mr. HERBERT SAMUEL, the Under Secretary for the Home Department, did not think that the amendment of Lord ROBERT CECIL was wide enough in its scope, as it failed to deal with cases in which medical students who were not quite fully qualified might have to act in this drastic manner to safeguard the life of the mother. Qualified midwives also might be placed in a dilemma of having to allow the mother to die or to commit what would technically be a criminal act. Mr. SAMUEL desired to give protection in both these cases. The form of words which he proposed were, "a person shall not be guilty of an offence under this Act who by means employed in good faith for the preservation of the life of the mother of the child destroys the life of any such child during its birth." The committee agreed to the insertion of this provision. Some changes were made in the phraseology of the Bill and it was subsequently ordered to be reported to the House.

University of Durham Bill.

The University of Durham Bill has passed through a Standing Committee of the House of Commons. A number of minor amendments were introduced into its text on the initiative of Mr. HILLS, who is taking charge of the measure.

Medical Men as Prison Governors.

A proposal was made in the Standing Committee of the House of Commons which is charged with the consideration of the Prevention of Crime Bill that the governors of prisons receiving persons undergoing preventive detention should be medical men. The Home Secretary took the view that such a provision would narrow the area of choice unduly and accordingly the proposal was not adopted.

HOUSE OF LORDS.

THURSDAY, JULY 16TH.

Proposed Sanatorium at Streamhill.

Lord CASTLETOWN asked His Majesty's Government what evidence was brought before the Irish Local Government Board's committee of inquiry with regard to the proposed sanatorium at Streamhill, County Cork, which warranted the Board in stating that it would not withhold sanction of a loan and also whether any practical medical expert had examined the proposed site.

Lord DENMAN replied that difficulty had been experienced in obtaining a site for a proposed sanatorium at Streamhill, County Cork, until Mr. Brasier Creagh offered a free gift of land for the purpose. In view of the nature of the reports presented by experts in favour of the site the Local Government Board felt justified in sanctioning a loan of £12,000 for the erection of buildings, provided that plans were amended in order to secure economy. The deed of gift of the site contained some conditions which were unusual but the Board was satisfied that they were not unreasonable.

Lord CASTLETOWN said that the land in question was absolutely unsuitable and, with all respect to the donor, he must say that one clause in the deed of gift was very remarkable. He expressed a hope that the Local Government Board would reconsider the scheme.

The matter then dropped.

The Medical Inspection of School Children.

Lord CLIFFORD OF CHUDLEIGH brought forward a motion that the words "satisfactory provision must be made for the medical inspection of children attending the school in accordance with Section 13 (1) (*b*) of the Education (Administrative Provisions) Act, 1907," in Article 25, Subsection (*b*) of the code of regulations for public elementary schools in England ought to be omitted from the code. He pointed out that the Board of Education had laid on local authorities the duty of the medical inspection of children in schools without providing any monetary assistance for that special purpose.

Earl BEAUCHAMP (who replied on behalf of the Board of Education) said that the noble lord seemed to have confused the principle as to whether there should be medical inspection with the method by which it should be carried out. The duty was imposed by Act of Parliament on the Board of Education of seeing that medical inspection was carried out, but he thought that the Board had shown very great gentleness in dealing with the various local authorities. He hoped that public opinion would demand that the local education authorities should take a real, sincere, and thorough interest in the question of medical inspection. As to the expense entailed, the figures which had been published by the County Councils' Association ranged from 4*d*. per child in Essex and Lancashire to 1*s*. 4*d*. in Cheshire and Yorkshire. The Board of Education thought a trustworthy estimate of the cost could not be framed at present. The average of the estimates of the county councils was 10*d*., and at the outset that might be regarded as not an unlikely amount.

The motion was not pressed.

TUESDAY, JULY 21ST.

Nurses Registration Bill.

On the motion for going into committee on the Nurses Registration Bill,

The Earl of CREWE explained that the Government had had the measure under its close consideration since it was read a second time. The result was that he had placed a long series of amendments to it on the notice paper which would have the effect of recasting the Bill. When the House went into committee he would move that these should be accepted *en bloc*. The Bill thus amended would be reprinted. The House would then see the effect of the amendments and the Bill could then be recommitted. However, he would state the general effect of his series of amendments. The first five clauses of the Bill were struck out, thereby getting rid of the arrangements for a Provisional Council which seemed unnecessary. The next set of amendments reduced the number of the members of the Nursing Council from 19 to 15, which was the number mentioned in the report of the Select Committee of the House of Commons. Matters were so arranged that six members each were given to the medical and the nursing professions and the remaining three were appointed by the Privy Council. Another amendment provided for the representation of the Local Government Board on the Council, and power was given to the Privy Council to amend rules submitted by the Nursing Council. There was also the question of a small annual fee for keeping a name on the Register and the means by which nurses could get on the Register were also dealt with. Ireland was excluded from the scope of the Bill, but that was only provisionally. It might be included at any time by Order in Council. The Local Government Board was indisposed to apply the Bill to Ireland at present for administrative reasons. Power was also given to authorise the formation of a Register of associate nurses by Order in Council. These were to have a lower standard of training than registered nurses.

Lord AMPTHILL (who introduced the Bill) said that he recognised that the amendments drawn up by the Earl of Crewe showed that the Government was prepared to deal with the matter in earnest. He would accept the amendments subject to a stipulation that he would have liberty to criticise any of them at a later stage if he considered it necessary.

The Marquis of SALISBURY pointed out that there were a large number of eminent medical men who were associated with the training of nurses but were resolutely opposed to the Bill. The benefits to be derived from the Bill could be easily exaggerated.

Lord KINNAIRD feared that the Bill, even as amended, would not be satisfactory.

The House then went into committee and subsequently adopted the amendments of the Earl of CREWE *en bloc*. The Bill as thus amended will, when it is reprinted, receive the further attention of their lordships.

Poisons and Pharmacy Bill.

The report stage of the Poisons and Pharmacy Bill was taken.

On the motion of the Earl of CREWE the following new provisions were introduced into the Bill: "The schedule to this Act may be amended by adding thereto or removing therefrom any article or by transferring any article from one part of the schedule to the other in the manner provided by Section 2 of the Pharmacy Act, 1868, for adding to the list of articles deemed to be poisons within the meaning of that Act;" and "a registered chemist or druggist may, notwithstanding anything in Section 15 of the Pharmacy Act, 1868, take, use, or exhibit the name or title of pharmacist."

Milk Legislation.

In answer to the Earl of ONSLOW,

Lord ALLENDALE stated that the Government hoped to introduce their Bill with regard to milk-supply in the autumn sitting of Parliament.

HOUSE OF COMMONS.

WEDNESDAY, JULY 15TH.

The Inebriates Acts in Scotland.

Mr. GULLAND asked the Secretary for Scotland whether he could yet say when he would appoint the Departmental Committee to inquire into the working of the Inebriates Acts in Scotland.—Mr. SINCLAIR replied: I hope shortly.

Belfast Health Commission.

Mr. DEVLIN asked the Chief Secretary to the Lord Lieutenant of Ireland whether he could now state what was the total cost of the Belfast Health Commission; what was the amount expended by the Local Government Board, the Belfast Corporation, and the Belfast Water Board respectively; and how much of the expenditure of the Local Government Board would be borne by the Treasury and how much by the Corporation and by the Water Board respectively.—Mr. BIRRELL answered: The costs of the Local Government Board amounted to £1931 10*s*. 10*d*., of which £500 will be borne by the Local Government Board and the balance will be charged to the city. No apportionment of this balance has yet been made between the different local bodies. The Local Government Board has no knowledge of the cost incurred outside its own department.

The Royal Army Medical Corps Building.

Mr. CROOKS asked the Secretary of State for War whether his attention had been called to the fact that there was abundant land to build on opposite the part of Woolwich Common he proposed to take: and whether, in the interest of the public, he would consider the possibility of taking this land instead of that proposed to be taken and thus leave

the public the use of the common they had always enjoyed.—Mr. HALDANE said in reply: I can assure my honourable friend that before the present site for the Royal Army Medical Corps building was finally selected all possible suitable sites were duly considered. The proposal to build at Eltham was dropped in deference to public opinion. In the case of the site selected the erection of a building behind the reservoir will not in any appreciable degree interfere with the amenities of the district, special care being taken not to remove the trees.

Tuberculosis Prevention (Ireland) Bill.

Mr. BIRRELL, Chief Secretary to the Lord Lieutenant for Ireland, formally moved the second reading of the Tuberculosis Prevention (Ireland) Bill after midnight.

Mr. NANNETTI said that there was a good deal of opposition to some of the provisions of the Bill. One of the clauses, for example, provided that there should be notification of cases of tuberculosis and that would entail the cost of half-a-crown a head to local authorities. That aspect of the case would require consideration. Then the setting up of sanatoriums would cost money and their maintenance would also be costly. How was the money to be provided for them? There was still another matter in connexion with the Bill which required consideration. Let them take the case of a workman who was suffering from tuberculosis. Under the provisions of the Bill he feared that such a man might become an object of infection in the eyes of his fellows. Before the Bill was passed the House should have an opportunity of considering how such a man was to be treated. He feared that there were some defects in the Bill which would inflict hardship.

Mr. C. CRAIG also pointed out that there were provisions in the measure which would entail hardship unless modified.

Lord BALCARRES criticised some of the machinery in the measure. He said that the first clause provided for the notification of all cases of tuberculosis. He had been told by medical men that three out of ten persons were affected by some form of tuberculous disease. The Bill set out that the Local Government Board might from time to time by Order prescribe the forms and stages of tuberculosis with regard to which, and the circumstances in which, notification was to take place. He did not know whether the Government seriously intended that stringent regulations were to be enforced in every case.

Mr. BIRRELL: The very opposite.

Lord BALCARRES: Then the regulations are to be lax?

Mr. BIRRELL: Yes.

Lord BALCARRES: This is a matter of enormous importance and the Bill ought to go to a Grand Committee. The Bill, he went on to say, authorised the local authorities to build hospitals. Did honourable Members who were acquainted with county councils in Ireland think that the average county council in Ireland was going to raise money to build a hospital for this particular disease? He did not believe that they would do it, and even if they desired to do it, they could not do it with a rate of 2*d.* in the £. He did not think that a small county was capable of dealing with a matter of such a national character as this. It was ridiculous to think that a county council would appoint a bacteriologist in connexion with tuberculous disease. They were asking county Clare to employ a bacteriologist for this disease.

Mr. BIRRELL: We also ask the county and city of Belfast to appoint a bacteriologist.

Lord BALCARRES: We ask small counties to do it, and all on a rate of 2*d.* in the £. He continued to say that he was afraid that would not work. If on such limited funds expert bacteriologists were to be appointed there would be very little left for other work. He thought that the Government should have dealt with this great problem in a more comprehensive way than through county councils.

Mr. BIRRELL said that he had no objection to the Bill being considered by a Grand Committee, if the House so desired it. The Bill had already received great consideration in Ireland. It had been printed in all the Irish newspapers. Its principle had been considered by all the medical societies in Ireland. The Royal College of Surgeons in Ireland, the Royal College of Physicians, the Royal Academy of Medicine in Ireland, and Irish branches of the British Medical Association had considered its provisions. So far as Ireland was concerned therefore the subject had received full and careful consideration. It was not surprising that the people of Ireland should have taken such a deep interest in this matter, as the ravages which the disease had made were positively appalling. In England the death-rate from tuberculosis was 1·6 per 1000, but in Ireland it was 2·7. In fact, one-sixth of the death-rate was due to tuberculosis. 12,000 people in Ireland died annually from it. Yet it was the opinion of men trained in medical science that this disease, if properly treated in its earlier stages, was curable, and it was established that it was spread by simple and ascertained methods. Therefore, having regard to the fact that the death-rate, great as it was at present, was steadily increasing, it was not surprising that the Irish people should be fully alive to the great importance of the subject. Owing to the missionary labours of Lady Aberdeen the subject had attracted an amount of attention there which would surprise people in England. The Tuberculosis Exhibition had visited 70 localities. It had profoundly affected people in Ireland. More than 300 lectures had been delivered by scientific men which had been largely attended and eagerly followed, and public talks had taken place on the subject of how the disease was spread by contagion and what care ought to be taken of cases. The local authorities and medical men had participated in these. The matter, in fact, was assuming something approaching a national campaign against a disease which, it was now considered, was preventable and the ravages of which could be largely checked. He did not think that the noble lord (Lord Balcarres) had understood the meaning of Clause I. The disease was a domesticated disease. Consumptives had been in the past regarded by the people as doomed but harmless persons who might be allowed to remain in their homes like cripples and people of weak intellect, to be kindly treated and left there until they met their inevitable death, usually between the ages of 25 and 35. Everyone agreed that such cases had to be dealt with in the spirit of the utmost tenderness and care, and it was impossible, however terrible the disease might be, to let the doctors loose upon their homes and remove the sufferers forcibly and stamp them as infected. That was the reason why the first clause was worded in such a fashion as to remit to the Local Government Board, which had a skilled doctor at its disposal, to determine the circumstances in which the notification was to take place, to secure privacy for it, and to deal with the cases with the utmost care. That was to be done out of regard to family feeling and public feeling also. That was the only reason why the first clause was not to be acted on with any spirit of scientific precision for many a long day. With regard to hospitals, he agreed with the noble lord (Lord Balcarres) that there were counties in Ireland which were not in a position to establish hospitals on a large enough scale to deal with all the people in their areas affected with the diseases, but such counties could act jointly in association with others. It was a desirable thing even if only small hospitals were erected in order that the people should be taught how the disease should be treated. For the incipient stages of the disease there were the sanatoriums, and the less expensive the scale upon which they were built the better, because after a time they would be better to be destroyed. The ravages of consumption touched many people, and no doubt many honourable Members had friends who had derived great benefit from sanatoriums in this country. If they were to deal with the whole of the persons affected that would be, of course, beyond their means. The great point was to set the thing going and to show by means of hospitals and sanatoriums in different parts of Ireland how the disease ought to be treated. Let them have a number of beds in hospitals for cases of an extreme character and sanatoriums for those who might be restored. Then there were the dispensaries. Honourable Members would see that the dispensaries were associated with nurses in order to treat the patients, it might be, in their own homes but to treat them skilfully with all the kindly aids of medicine in order to prevent contagion spreading to other members of the family. These were the things which the Irish people wanted and for which they were prepared to rate themselves. The Bill had received support from all parties in Ireland to a most remarkable extent. The simplest and humblest of the population were prepared to join in the campaign against the disease. The Bill asked Parliament to invest the local authorities with the means of organising and maintaining a complete campaign against a disease which had destroyed many thousands of the Irish people. There were points which required consideration. If the House gave the Bill a second reading it might be desirable to send it to a Grand Committee. That would probably delay the passage of the Bill in this part of the session, but they could take it up again in the autumn. If that was so, of course he was satisfied, but he should be glad to see the committee stage taken before the holidays.

Mr. MACVEAGH asked whether in the event of the Bill being sent to a Grand Committee it could be passed before the holidays.

Mr. BIRRELL replied that that would depend on the character of the amendments which would be proposed. Perhaps the best course would be to refer the Bill to a committee of the whole House. Perhaps many of the amendments could be dealt with by arrangement and without discussion.

Mr. NANNETTI said that he was prepared to accept the committee of the whole House.

The motion for the second reading was then agreed to and the Bill was referred to a committee of the whole House.

THURSDAY, JULY 16TH.

The Medicine Chest of the House of Commons.

Mr. PATRICK O'BRIEN asked the First Commissioner of Works whether he was aware that some years ago it was arranged, as a provision in case of accident or illness of Members or other persons in the Houses of Parliament, that a properly equipped medicine chest would be provided, and also a room in which those needing prompt medical attention could be treated; whether he was aware that on a recent occasion when a Member of the House required medical aid it was found that the so-called medical chest consisted of a small basket less than 12 inches square which did not contain the most ordinary first-aid requirements, some of which had to be obtained from a neighbouring hospital; whether he could explain this state of things; and whether he would invite some of the medical Members of the House to suggest what necessary medicines and medical appliances should be provided, and see that they were available in the shortest possible time in case of accident or sudden illness.—Mr. LEWIS HARCOURT replied: The Sergeant-at-Arms has for many years generously placed his room at the disposal of Members when medical attention is required. I much regret to hear that the medicine chest on a recent occasion was found to be insufficiently equipped, but I am informed that the material required was available in the box attached to the ambulance if that had been examined. I shall take immediate steps to obtain the best gratuitous advice from the medical Members of the House as to what is required and see that it is provided and is easily and immediately available in the shortest possible time in case of accident or sudden illness.—Mr. PATRICK O'BRIEN further asked who was responsible for not having examined the alleged medicine chest.—Mr. LEWIS HARCOURT: The whole matter is very complicated. It was decided two years ago that it would be impossible to bear the expense of such a service on any of the votes. Therefore we are indebted to the generosity of the honourable Member for the University of Edinburgh (Sir John Batty Tuke) for the provision of the medicine chest. When it required to be replenished a year ago owing to the difficulty that faced me in view of the Comptroller and Auditor-General, I was compelled to ask the same honourable Member to replenish it at his own expense. I have made arrangements recently by which I hope to be able to supply the necessities of all Members.

MONDAY, JULY 20TH.

The Royal College of Surgeons in Ireland.

Sir WILLIAM COLLINS asked the Prime Minister whether he would now state the decision he had arrived at as the result of the representations made to him on behalf of the Royal College of Surgeons in Ireland in regard to the possible effects upon their medical school of the passing into law of the Irish Universities Bill.—Mr. ASQUITH replied: It is proposed that there shall be in the charter of the new university no clause restricting the Senate from giving full recognition, if it is deemed fit, to the work done in the Royal College of Surgeons. I believe that in these circumstances the Royal College of Surgeons will find no difficulty in future in continuing the work which it has done so effectively in the past; but if in the working of the new system it should prove that the Royal College of Surgeons has suffered injury I hope, without giving any pledge, that the Treasury may be found not indisposed to consider favourably the application for putting the College in a position to continue its work.

TUESDAY, JULY 21ST.

Tuberculosis Prevention (Ireland) Bill.

In reply to Mr. C. CRAIG,

Mr. BIRRELL said: While I cannot agree that there is any serious

difference of opinion in Ireland upon the subject of the Tuberculosis Prevention Bill, I feel that sufficient consideration could scarcely be given to it in committee at the late hour which would be inevitable having regard to the present state of business. I propose, therefore, to move for the discharge of the existing order for the committee stage and to reserve the Bill for consideration by a Grand Committee during the autumn sitting, when I have no doubt this very important and necessary measure will be carefully and yet speedily dealt with.

The Importation of Boneless Meat.

Mr. GEORGE ROBERTS asked the President of the Local Government Board what amount of boneless scrap meat was imported into this country during the year 1907 from the United States, Argentina, Australia, New Zealand, and Canada respectively; what precautions were taken to detect disease in the animals from which the meat was derived or to provide against unwholesome conditions of handling, chemical treatment, and packing in the countries of origin; and whether this meat was inspected after the process of thawing upon arrival in this country, so as to prevent decomposed meat passing into the possession of manufacturers.—Mr. BURNS replied: Imports of boneless scrap meat are not specially distinguished by the Board of Customs, and hence the amount imported cannot be definitely stated. Some information on the subject and also as to the methods of inspection in the countries of origin will, however, be found in the report made to the Local Government Board by Dr. G. S. Buchanan on certain imported meat foods of questionable character, a copy of which I will send to my honourable friend. Thawing mostly takes place after the meat has reached its destination in small shops, sausage factories, &c., and in these circumstances it is not practicable to make sufficiently frequent inspections to prevent the use of unwholesome meat. Looking to these and other considerations, I have caused regulations to be prepared with the object of preventing the importation of meat in the form of scraps which cannot readily be identified with definite parts of the carcass.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, J. B., ET FILS, 19, Rue Hautefeuille, Paris.

Bibliothèque de Thérapeutique. Publiée sous la Direction de A. Gilbert et P. Carnot. Physiothérapie, Mecanothérapie, Rééducation, Sports, Méthode de Bier, et Hydrothérapie. Par les Docteurs Fraikin, Grenier de Cardenal, Constensoux, Tissié, Delagenière, et Pariset. Price Fr.8.

BAILLIÈRE, TINDALL, AND COX, 8, Henrietta-street, Covent Garden, London, W.C.

The Treatment of Pulmonary Tuberculosis by a Postural Method, encouraging Drainage of the Lung and inducing Artificial Hyperæmia of the Apex. By A. T. Tucker Wise, M.D., M.R.C.S., L.R.C.P., Swiss Federal Diploma (Exam.). Abridged and reprinted from THE LANCET. Price *1s.* net.

CAXTON PUBLISHING CO., Clun House, Surrey-street, London, W.C.

The Edinburgh Stereoscopic Atlas of Obstetrics. Edited by G. F. Barbour Simpson, M.D., F.R.C.P.E., F.R.C.S.E., Senior Assistant to the Professor of Midwifery in the University of Edinburgh, and Edward Burnet, B.A., M.B., Ch.B. With a Preface by Professor Sir J. Halliday Croom, M.D., F.R.C.P.E., F.R.C.S.E., F.R.S.E., Professor of Midwifery in the University of Edinburgh. Section II. Price not stated.

FISCHER, GUSTAV, Jena.

Handbuch der Technik und Methodik der Immunitätsforschung. Herausgegeben von Prof. Dr. R. Kraus in Wien und Dr. C. Levaditi in Paris. Zweiter Band. Erste Lieferung. Price M.8.

Mitteilungen aus der Augenklinik des Carolinischen Medico-Chirurgischen Instituts zu Stockholm. Herausgegeben von Dr. J. Widmark, Professor der Augenheilkunde am Carolinischen Medico-Chirurgischen Institut zu Stockholm. Neunftes Heft. Price M.5.

Lehrbuch der Chirurgie. Herausgegeben von Prof. Wullstein, Halle a.S., und Prof. Wilms, Basel. Erster Band: Allgemeiner Teil. Chirurgie des Kopfes, des Halses, der Brust und der Wirbelsäule. Price M.10.; geb., M.11.

Nachprüfung des von Neisser und Sachs angegebenen Verfahrens zur forensischen Unterscheidung von Menschen- und Tierblut. An den Herrn Minister der geistlichen, Unterrichts- und Medizinal-Angelegenheiten erstattete amtliche Berichte. Abdruck aus dem Klinischen Jahrbuch. Neunzehnter Band. Price M.1.50.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

ABRAM, J. HILL, M.D., F.R.C.P. Lond., has been appointed to the Chair of Therapeutics in the Liverpool University.

ALLAN, HERBERT WILLIAM, B.A. Cantab., L.R.C.P., M.R.C.S., has been appointed Medical Officer to the Wells (Somerset) Union Workhouse.

ANDERSON, J. THEODORE, L.R.C.P. & S. Edin., has been appointed Senior Assistant Medical Officer to the Hospital for the Insane, Perth, Western Australia.

BALDWIN, ASLETT, F.R.C.S. Eng., has been appointed Assistant Surgeon to St. Mark's Hospital, City-road.

BETHUNE, WILLIAM, M.B., C.M. Edin., has been appointed Medical Officer of Health by the Bideford (Devon) Rural District Council.

BICE, FRANK VEALE, L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer to the St. Colomb Major (Cornwall) Workhouse.

CORNER, EDRED MOSS, M.C., F.R.C.S., has been appointed Surgeon-in-Charge of In-patients to the Children's Hospital, Great Ormond-street.

FAGGE, R. H., L.R.C.P. Lond., M.R.C.S., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Melton Mowbray District of the county of Leicester.

FREKE, J. E., B.S. Cantab., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Fleet District of the county of Hants.

HARRISON, J. McK., M.B., B.S. R.U.I., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Ledbury District of the county of Hereford.

JOSEPH, A. H., M.D. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Bexhill District of the county of Sussex.

MOYLE, REGINALD, L.R.C.P. Lond., M.R.C.S., has been appointed District Medical Officer by the Chepstow (Monmouthshire) Board of Guardians.

RICHARDS, THOMAS EDWARD, M.B., Ch.B. Edin., has been appointed Medical Officer of Health of the Ystradgynlais (Brecon) Rural District.

RIDDELL, J. SCOTT, M.V.O., M.B., C.M. Aberd., has been appointed Examiner in Surgery in the University of Aberdeen.

STAMP, W. D., M.R.C.S. Eng., L.R.C.P. & L.M. Edin., has been appointed Medical Officer to the Union Workhouse and Infirmary, No. 1 District, and Public Vaccinator to the Plympton St. Mary Union.

TAYLER, FREDERICK ERNEST, L.R.C.P. Lond., M.R.C.S., has been appointed District Medical Officer of the Trowbridge and Melksham (Wilts) Union.

THOMSON, A. P. G., M.B., C.M. Edin., D.P.H., has been appointed Medical Officer of Health of Hull.

WATSON, C. GORDON, F.R.C.S. Eng., has been appointed Assistant Surgeon to St. Mark's Hospital, City-road.

WIGHAM, WILLIAM HARPER, M.D. Durh., M.R.C.S., has been appointed Medical Officer of Health of South Molton (Devon).

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Resident Surgical Officer. Salary £100 per annum.

BIRMINGHAM, CITY OF, SALTERLEY GRANGE SANATORIUM FOR CONSUMPTIVES, near Cheltenham.—Medical Superintendent. Salary £250 per annum, with board.

BURNLEY, VICTORIA HOSPITAL.—Resident Medical Officer for six months. Salary at rate of £100 per annum, with residence, board, and washing.

BURY ST. EDMUNDS, WEST SUFFOLK GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board and lodging.

CANTERBURY, KENT AND CANTERBURY HOSPITAL.—House Surgeon, unmarried. Salary £90 per annum, with board and lodging.

CARDIFF INFIRMARY (GENERAL HOSPITAL).—House Surgeon for six months. Salary £30 with board, residence, and laundry.

CENTRAL LONDON DISTRICT SCHOOLS, Hanwell.—Dental Surgeon, Salary £80 per annum.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Junior House Surgeon. Salary £60 per annum, with board, apartments, and laundry.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—House Physician for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

CITY OF LONDON UNION INFIRMARY.—Assistant Medical Superintendent. Salary £150 per annum, with apartments, rations, and washing.

DEVONPORT, ROYAL ALBERT HOSPITAL AND EYE INFIRMARY.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £50 per annum, with board, lodging, and laundry.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark Bridge-road, London, S.E.—House Surgeon for nine months. Salary at rate of £60 per annum, with board, residence, and washing. Also Anæsthetist. Salary at rate of 25 guineas per annum.

GENERAL POST OFFICE, MEDICAL DEPARTMENT.—Assistant (Female) Medical Officer, unmarried. Salary £200 per annum, rising to £300.

HALIFAX, ROYAL HALIFAX INFIRMARY.—Third House Surgeon, unmarried. Salary £80 per annum, with residence, board, and washing.

HARRIS PARISH.—Medical Officer. Salary £126 and house.

HEREFORD, CITY OF.—Medical Officer of Health. Salary £500 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Resident House Physician for six months. Salary £25.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Physician, House Surgeon, and Assistant Casualty Officer.

IPSWICH, EAST SUFFOLK AND IPSWICH HOSPITAL.—House Surgeon. Salary £65.

KETTERING AND DISTRICT GENERAL HOSPITAL.—Resident Medical Officer, unmarried. Salary £100 per annum, with board, residence, &c.

LEICESTER INFIRMARY.—Assistant House Surgeon for six months. Also Assistant House Physician. Salary in each case at rate of £60 per annum, with board, apartments, and washing.

LEICESTERSHIRE AND RUTLAND LUNATIC ASYLUM.—Junior Assistant Medical Officer. Salary £150 per annum, with board, lodging, and washing.

LONDON THROAT HOSPITAL, 204, Great Portland-street, W.—House Surgeon, non-resident, for six months. Salary at rate of £50 per annum. Also Anæsthetist.

LOUGHBOROUGH AND DISTRICT GENERAL HOSPITAL AND DISPENSARY.—Resident House Surgeon. Salary £100 per annum, with rooms, attendance, board, and washing.

MAIDSTONE, WEST KENT GENERAL HOSPITAL.—Assistant House Surgeon, unmarried. Salary £60, with board and lodging.

MANCHESTER, ANCOATS HOSPITAL.—Resident House Physician. Salary £80 per annum, with board, residence, &c.

MANCHESTER, UNIVERSITY OF.—Junior Demonstrator in Physiology. Salary £100, rising to £150 per annum.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood, Middlesex.—Junior Resident Medical Officer. Salary £50 per annum, with board, lodging, &c.

NATIONAL SOCIETY FOR THE PREVENTION OF CRUELTY TO CHILDREN.—Medical Inspector. Salary £200, rising to £300 per annum.

NEWCASTLE-UPON-TYNE WORKHOUSE.—Assistant Medical Officer. Salary at rate of £150 per annum, with apartments, rations, and washing.

ORSETT UNION.—Workhouse and District Medical Officer and Public Vaccinator. Salary £156 per annum.

PERTH ROYAL INFIRMARY.—House Surgeon. Salary £60 per annum, with board.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney road, Bethnal Green, E.—House Physician and Two House Surgeons for six months. Salary in each case at rate of £60 per annum, with board, residence, and laundry.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.—House Physician for six months. Salary at rate of £60 per annum, with board, lodging, and washing.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Senior Resident Medical Officer, unmarried. Salary at rate of £100 per annum, all found. Also Assistant Resident Medical Officer, unmarried. Salary at rate of £80 per annum, all found.

ST. MARY'S HOSPITAL MEDICAL SCHOOL, Paddington, W.—Demonstrator of Physiology. Salary £150 per annum.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician. Salary £50 per annum, with board, lodging, and washing.

SINGAPORE (TOWN MUNICIPALITY, STRAITS SETTLEMENTS.—Assistant Municipal Health Officer. Salary $4200, rising to $4800.

STIRLING DISTRICT ASYLUM, Larbert.—Second Assistant Medical Officer. Salary £125 per annum, with board, lodging, and laundry.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon. Salary £80 per annum, with board, lodging, and laundry.

WORCESTER COUNTY AND CITY ASYLUM.—Third Assistant Medical Officer, unmarried. Salary £140 per annum, with board, lodging, attendance, and laundry.

WORCESTERSHIRE, BARNSLEY HALL ASYLUM, Bromsgrove.—Second Assistant Medical Officer. Salary £150 per annum, with quarters, board, washing, and attendance.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of a vacancy as Certifying Surgeon under the Factory and Workshop Act at Rugby in the county of Warwick.

Births, Marriages, and Deaths.

BIRTHS.

CHOLMELEY.—On July 14th, at Lemon-street, Truro, the wife of Mountague A. Cholmeley, M.R.C.S., L.R.C.P., of a daughter.

WALKER.—On July 19th, at Roundhay, Leeds, the wife of Henry Secker Walker, M.Sc., F.R.C.S., of a daughter.

MARRIAGES.

GORDON—FRASER.—At St. Cuthbert's parish church, Edinburgh, on the 18th inst., by the Rev. A. Wallace Williamson, D.D., Chaplain-in-Ordinary to H.M. the King, George Arthur Gordon, M.B., Ch.B., Richmond, Surrey, son of the late Andrew Gordon, Banker, London, to Eva, younger daughter of Dr. John Fraser, Commissioner in Lunacy, 13, Heriot-row, Edinburgh.

GOSSE—HAY.—On July 14th, at St. Mary Abbots Church, Kensington, by the Rev. Prebendary Pennefather and the Rev. Robert Jamblin, Philip Gosse, M.R.C.S., L.R.C.P., only son of Edmund Gosse, LL.D., Librarian to the House of Lords, to Gertrude Agnes Gosse Hay, daughter of the late Alexander Hay of Linden, South Australia, and Mrs. Alexander Hay of Mount Brecken, S. Australia, and 27, Wynnstay-gardens, Kensington.

HANDLEY—RIGBY.—On July 18th, at St. James's, Piccadilly, by the Rev. J. Hamilton Carson, M.A., Rector of Little Plumstead, Norwich, assisted by the Rev. Francis Cole, B.A., Curate-in-charge of St. Luke's, Great Yarmouth, W. Sampson Handley, M.S., F.R.C.S., of 12, New Cavendish-street, W., to Muriel, youngest daughter of the late Rev. Francis W. Clayton Rigby, Incumbent of St. George's, Great Yarmouth, and of Mrs. Rigby, South Town, Great Yarmouth.

LANGWILL—MOORHEAD.—At St. Andrews Pro-Cathedral, Dundee, on the 16th inst., Hamilton Graham Langwill, M.D., F.R.C.P.E., 4, Hermitage-place, Leith, to Alice Margaret Moorhead, L.R.C.P. & S. Edin., 4, Tay-square, Dundee, elder daughter of Brigade-Surgeon G. A. Moorhead, Ninewells, Dundee.

RICE—STENNING.—On July 16th, at Beckenham parish church, David Rice, M.D., to Evelyn Grace, youngest daughter of Edward Stenning, of Glenlyon, Beckenham.

DEATHS.

BANKS.—On July 16th, at Merrion-square, Dublin, Sir John Banks, K.C.B., Honorary Physician-in-Ordinary to His Majesty King Edward VII. in Ireland.

JORDISON.—On July 19th, at Malpas, Cheshire, Christopher Jordison, Surgeon, son of the late Robert Binks Jordison, of South Ockendon, Essex, aged 62 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

RAILWAY COMPANIES AND EXCURSION PARTIES.

THE old adage which associates evil with want of thought is far too frequently exemplified by some of our railway companies. Occasionally a letter appears in the public press from some aggrieved traveller but little or nothing is done to rectify grievances which are in many cases due to red tape or the crass stupidity of the railway servants. A letter recently appeared in the *Times* complaining of the treatment of a "mothers' meeting" party which travelled from Clapham Junction to Bognor with frequent stoppings and change of carriages. The carriages at Clapham Junction were marked reserved, but at Sutton the party had to change and again at Horsham. The train appears also to have been overcrowded and at one of the places of change there was a "seatless platform." It was quite pitiable, says the Rev. R. A. Dobson who writes the letter, to see several lame and infirm old women struggling over the bridge, after having been mocked by the farce of a "reserved" carriage which went only as far as Sutton on the way to Bognor, on to an already crowded platform. The writer calls the treatment which these poor people received "cruel," and we agree with him. Many of these people, perhaps, only have this one day's holiday in the year and it is necessary that they should not have their enjoyment curtailed by a blundering railway company or its officials, and it is lamentable that poor old people, the lame, and the infirm should be compelled to travel in overcrowded compartments with the additional hardship of having to change carriages several times. We understand that the company has admitted its fault and acknowledges that much of the delay and inconvenience might have been avoided by the company's employees. It is gratifying to know that the company has recognised its responsibility, and this responsibility it owes not only to the travelling public but also to its shareholders.

DARWINISM AND THE *MENS MEDICA*.

To the Editor of THE LANCET.

SIR,—Reminiscences of the genesis of the famous theory of "The Origin of Species" have been very much in the air since the beginning of the present month. Few scientific or even theological theories have, at the very outset, aroused opposition so violent and so widespread; or inspired admiration so unquestioning and enthusiastic. Charles Darwin, as is well known to everyone, inherited his powers of observation of Nature and of criticism of the facts and phenomena presented from a medical ancestry. The following extracts tell the story:—

1. "But it may appear too bold, in the present state of our knowledge on this subject, to suppose that all vegetables and *animals now existing*, were originally derived from the smallest microscopic ones formed by spontaneous vitality; and that they have, by innumerable reproductions, during innumerable centuries of time, gradually acquired the size, strength, and excellence of form and faculties which they now possess; and that such amazing powers were originally impressed on matter and spirit by the great Parent of Parents, Cause of Causes! Ens Entium!"—ERASMUS DARWIN, M.D. (Additional Notes to "Temple of Nature," published posthumously in 1803).

2. "It is interesting to contemplate an entangled bank clothed with many plants of many kinds, with birds singing on the bushes, with various insects flitting about, and with worms crawling through the damp earth, and to reflect that these elaborately constructed forms so different from each other, and dependent on each other in so complex a manner, have all been produced by laws acting around us. These laws, taken in the largest sense, being Growth with Reproduction; Inheritance which is almost implied by reproduction; Variability from the indirect and direct action of the external conditions of life, and from use and disuse; a Ratio of Increase so high as to lead to a Struggle for Life, and as a consequence to Natural Selection, entailing Divergence of Character, and the Extinction of less improved forms. Thus from the war of nature, from famine and death, the most exalted object which we are capable of conceiving, namely the production of the higher animals, directly follows. There is grandeur in this view of life, with its several powers, having been originally breathed by the Creator into a few forms or into one; and that whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning endless forms most beautiful and most wonderful have been, and are being, evolved."—CHARLES DARWIN (Final paragraph of "Origin of Species by Means of Natural Selection").

The *absolute novelty* of the theory was so readily assumed and granted by the vast majority of advocates and commentators that the following sentences of Sir Thomas Browne's "Pseudodoxia Epidemica" (1646) must have been overlooked. They prove that the enunciation of the Darwinian theory in Browne's presence, 212 years before, would by no means have surprised him. "It may be perpended whether it might not fall out the same way that Jacobs cattell became speckled, spotted and ringstraked, that is, by the power and efficacy of Imagination; which produceth effects in the conception correspondent unto the phancy of the Agents in generation, and sometimes assimilates the Idea of the generator into a realty in the thing engendred. For, hereof there passe for currant many indisputed examples; so in Hippocrates we reade of one, that from the view and intention of a picture conceaved a Negroe;

and in the history of Heliodore of a Moorish Queene, who upon aspection of the picture of Andromeda, conceaved and brought forth a faire one. And thus perhaps might some say it was at the beginning of this complexion, induced first by Imagination, which having once impregnated the seed, found afterward concurrent productions, which were continued by Climes, whose constitution advantaged the first impression. Thus Plotinus conceaveth white Peacocks first came in: Thus as Aldrovand relateth, many opinion that from aspection of the Snow which lyeth long in Northerne Regions, and high mountaines, Hawkes, Kites, Beares, and other creatures become white; and by this way Austin conceaveth the Devill provided, they never wanted a white spotted Oxe in Ægypt, for such an one they worshipped, and called it Apis."

The same author, in the same volume from which the above quotation has been made, introduces to his readers some of the views of the "Father of Medicine" and the "Father of Logic" on the subject of "heredity," which tend on the whole to show that those remote Pagan ancestors were not quite so far "behind time" as their twentieth century descendants so readily assume. In discussing the characteristic hue of the negro, he proceeds to observe:—

"Such a cause and the like foundation of Tincture, as doth the black Jaundice, which meeting with congenerous causes might settle durable inquinations, and advance their generations unto that hue, which was naturally before but a degree or two below it: And this transmission we shall the easier admit in colour, if we remember the like hath beene effected in organicall parts and figures; the Symmetry whereof being casually or purposely perverted, their morbosities have vigorously descended to their posterities, and that in durable deformities. This was the beginning of Macrocephali or people with long heads, whereof Hippocrates, *De Aere, Aquis & Locis*, hath cleerely delivered himself: *Cum primum editus est Infans, caput ejus tenellum manibus effingunt, & in longitudine adolescere cogunt; hoc institutum primum hujus modi naturæ, naturæ dedit vitium, successu vero temporis in naturam abiit, ut proinde instituto nihil amplius opus esset; semen enim genitale ex omnibus corporis partibus provenit, ex sanis quidem sanum, ex morbosis morbosum: Si igitur ex caluis calui, ex cæcis cæci, & ex distortis, ut plurimum, distorti gignuntur, cademq in cæteris formis valet ratio, quid prohibet cur non ex macrocephalis macrocephali gignantur?* Thus as Aristotle observeth the Deeres of Arginusa had their eares divided, occasioned at first by slitting the eares of Deere. Thus have the Chineses little feete, most Negroes great lips and flat noses; and thus many Spaniards, and mediterranean Inhabitants, which are of the race of Barbary Moores, (although after frequent commixture) have not worn out the Camoys nose unto this day."

Of course, our author, as is specially characteristic, avoids anything approaching dogmatic decision or emphatic expression of convinced, and accordingly unchangeable, opinion. To a student for a coming "Honours" examination and to the compiler of a special thesis such a feature of a scientific essay amounts, of course, to an aggravating deformity. But it will hardly be rated as such by the enthusiastic and earnest votary of truth who has attained to a certain degree of skill and discrimination in the prolonged pursuit of the cherished object of his life. Browne very often merely repeated, as Pliny and Aristotle had done before him, unverified statements of his predecessors—as makers of large text-books do even in the present day! And it will, I trust, interest some readers to note before concluding that the author of the "Religio Medici," whose tercentenary was so worthily celebrated some three years ago, was born in the same year (1605) which saw the death of the enthusiastic Bolognese apostle of modern natural history, Ulysses Aldrovandus. The philosophic student of the history of science (and of human progress in general) is also interested in being reminded as he passes that the same year (1642) witnessed the death of Galileo Galilei and the birth of Isaac Newton; that the same year (1626) received the credit of the death of Francis Bacon and the birth of Robert Boyle; that Shakespeare and Cervantes died on the same day; that Darwin and Gladstone—both pioneer giants of reformation of opinion—were born in the same year. Many such parallels could be added, but the list would perhaps become tedious in longitude. And I will take the opportunity of suggesting, in conclusion, that while rendering unto Charles Darwin the honour which is justly due to him for having so effectually opened up new vistas of illuminating curiosity and research, we should not deliberately ignore, as has so generally been done, the claims of the predecessors who prepared the way for him and in some cases made his paths (even unnaturally) straight. The best of Darwin's original observations are those which evidently prove to the initiated that he had inherited a "medical mind." And let me launch a Hibernian shaft at parting: a Dublin medical man, Dr. Freke (visiting physician to Dr. Steevens' Hospital), had already formulated and published, in the decade which *preceded* the appearance of Darwin's immortal "Origin of Species," the nuclear and essential concept of the Darwinian scheme of creation!

I am, Sir, yours faithfully,

Dublin, July 11th, 1908. JOHN KNOTT, M.D. Dub.

AN ANTISEPTIC TELEPHONE MOUTHPIECE.

THE many references which have been made in THE LANCET to the telephone mouthpiece as a factor in the spread of disease, and especially the article on the subject by Dr. F. J. Allan, medical officer of health of the City of Westminster, which we published on June 27th, have inevitably called forth many suggestions for the improvement of telephone mouthpieces so far as their liability to transmit disease is concerned. We have received from the Sanitary Manufacturing Company of Chicago, Illinois, U.S.A., a specimen of their "Red Cross" Antiseptic Telephone Mouthpiece which can be readily attached to any telephone. It consists of a vulcanite mouthpiece having an inner lining of perforated aluminium. This lining at its anterior periphery is turned backwards so as to form a hollow rim, and a space is also left between the two materials of which the mouthpiece is constructed. The rim is filled with an absorbent material upon which, through a small hole in the outer edge of the rim, should be periodically dropped a preparation of formaldehyde supplied by the company. The antiseptic gas thus generated circulates between the inner and outer parts of the mouthpiece and finds its way into the interior by means of the perforations in the lining. The idea seems to be a good one, but unless the absorbent material is regularly saturated with the antiseptic fluid it is obvious that such a mouthpiece may more easily become a source of infection than one made entirely of non-absorbent materials. With regard to the name Red Cross we feel it our duty to protest against the use of this term and device in connexion with hygienic articles and preparations. The device of a red cross belongs by right to a particular institution with a particular object, and the use of that device is misleading if used in any other connexion.

EIGHTEENTH CENTURY MEDICAL SOCIETIES.

A CORRESPONDENT writes:—"I am conducting an inquiry into the medical institutions in Great Britain in the eighteenth century and should be very grateful for information on the following points: (1) The names of any medical societies or libraries in existence in this country in the eighteenth century, or particulars of their published memoirs; (2) the names of any medical journals or periodicals in existence at or about 1770." If any of our readers can furnish information upon either of these points we shall be happy to receive it.

INSTRUCTION IN FRENCH.

WE have received a letter from a French medical man who is afflicted with failing eyesight and is desirous of teaching his language to one or two young Englishmen who will reside in his own house, which is pleasantly situated near Rochefort-sur-Mer. He offers a comfortable home-life to his pupils at moderate terms. We call attention to his case because it has been well recommended to us, and we shall be pleased to put any of our readers into communication with him who may desire it and who may be able to afford some assistance to a disabled colleague.

LACTONE OR BUTTERMILK TABLETS.

Messrs. Parke, Davis, and Company, of Beak-street, Regent-street, London, W., have sent us specimens of their lactone tablets which represent in compressed form a pure culture of lactic acid bacilli. We have made a careful laboratory experiment with these in accordance with the directions laid down and have found the tablets satisfactorily active in producing buttermilk. As is well known, this modified form of milk presents certain important dietetic advantages, amongst which are its nutritive value, its easy digestibility, and the activity of the lactic organisms in arresting septic processes in the bowel. The name lactone does not seem to us to be well chosen, since it is a generic term for a class of bodies well known in organic chemistry.

Mr. Joseph Carroll.—In some circumstances such plastic operations give good results, but there is no particular surgeon whose results are better than those of other operators and as a rule the issue of these cases is disappointing.

"*Tied to It.*"—While recognising the weight of what our correspondent has to say we fear that nothing can be done pending the result of the communication with the Government of India on the subject.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, July 23rd, 1908.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
July 17	29·44	S.W.	0·74	117	66	58	58	61	Cloudy
,, 18	29·60	NNW	0·30	95	65	57	57	58	Raining
,, 19	30·04	N.W.	0·05	92	65	55	57	60	Cloudy
,, 20	30·11	N.	...	108	69	55	56	58	Overcast
,, 21	30·22	N.E.	...	95	68	55	56	59	Overcast
,, 22	30·15	S.W.	...	121	77	55	59	63	Fine
,, 23	30·10	S.W.	...	115	75	59	62	65	Fine

During the week marked copies of the following newspapers have been received:—*East African Record, Manchester Dispatch, Birmingham Mail, Oldham Chronicle, Weekly Times and Echo, Cardiff Mail, Sheffield Independent, Notts Guardian, Plymouth News, Evening Standard, Liverpool Express, Yeovil Gazette, Scotsman, Leeds Post, Bradford Observer, Westminster Gazette, Pall Mall Gazette, Durham Chronicle, Staffordshire Sentinel, Durham Advertiser, Manchester Evening News, Liverpool Courier, Richmond Times, Oldham Standard, &c.*

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, road, W.

MONDAY.—2 P.M., Medical and Surgical Out-patients. X Rays. Mr. Dunn: Diseases of the Eyes. 2.30 P.M., Operations.

TUESDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 2 P.M., Medical and Surgical Out-patients. X Rays. Dr. Davis: Diseases of Throat, Nose, and Ear. 2.30 P.M., Operations. Dr. Abraham: Skin Diseases.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. 2 P.M., Medical and Surgical Out-patients. X Rays. 2.30 P.M., Operations. Dr. Robinson: Diseases of Women.

THURSDAY.—2 P.M., Medical and Surgical Out-patients. X Rays. Mr. Dunn: Diseases of the Eyes. 2.30 P.M., Operations.

FRIDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 2 P.M., Medical and Surgical Out-patiens. X Rays. Dr. Davis: Diseases of Throat, Nose, and Ear. 2.30 P.M., Operations. Dr. Abraham: Skin Diseases.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. 2 P.M., Medical and Surgical Out-patients. X Rays. 2.30 P.M., Operations. Dr. Robinson: Diseases of Women.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (27th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), West London (2.30 P.M.).

TUESDAY (28th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.).

WEDNESDAY (29th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan 9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.).

THURSDAY (30th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.).

FRIDAY (31st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.) Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.).

SATURDAY (1st).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1908, which was completed with the issue of June 27th, and the Title-page to the Volume, were given in THE LANCET of July 4th.

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VOLUMES for the first half of the year 1908 are now ready. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

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